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ABSTRACT

This book is designed to aid American home economists sent to other countries on technical assistance programs and home economists of other countries responsible for beginning such programs focused on the home and family. The information describes the pioneering experience of trained people in many countries and some ways in which basic principles of sound home economics may be applied everywhere. Topics treated are pioneering in home economics (emphasizing child care), foods and nutrition, home management, health and sanitation, home gardens, poultry, rabbit and goat production, housing and home improvement, and care and construction of clothing. The book is illustrated with photos and drawings. Measurement conversion tables and a three-page bibliography are appended. (MS)

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HOME MAKING
AROUND THE WORLD

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FOREWORD

In many countries throughout the world, governments are beginning extension programs with the home and the family as a focal point. Some countries have already made great progress. It is to further this work, particularly with rural families, that this publication is written.

It is addressed to the American home economists who are sent to other countries on technical assistance programs, and to the home economists of other countries who are responsible for such programs there.

This publication attempts to show some ways in which the basic principles of sound home economics may be applied in every home the world over to make living more satisfying. The information represents the pioneering experience of trained people in many countries.

Included in each section are

*The philosophy inherent in initiating and developing work with families.

*Some subject matter on what to teach and how to do.

*Methods particularly apropos to the teaching of the subject.

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This publication has been prepared by the Federal Extension Service of the United States Department of Agriculture in cooperation with the Agency for International Development. Representatives of Foreign Agriculture Service of the U. S. Department of Agriculture also contributed materials and ideas.

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PIONEERING
IN
HOME
ECONOMICS

PIONEERING IN HOME ECONOMICS

"How is a home economics program to be started? With what shall I begin and where?"

These questions were asked by a technician from Nepal as she began a four months study program in home economics in the United States. She might have been speaking for most home economics extension workers who have come to this country to study our methods here.

She might also have been speaking for the home economics extension worker from the United States as she leaves for another part of the world to assist in the technical assistance program.

The Nepalese on the one hand was confronted with a complicated program which had been more than a half century in the making. It was also based on impressive natural resources and partly the product of a revolution in mechanization, unfamiliar to many people.

The American technician on the other hand as she tried to orient herself in a strange land, was face to face with reality in the lack of resources she had come to take for granted; in the absence of equipment she was accustomed to; and in the low living standard of the people.

A few foreign technicians have felt frustrated as they have returned to their countries. There is so much to be done, so little to do with; they say.

Many others have sensed the deeper significance of home economics in the United States, and have been able to glean basic principles that they can apply to their own countries' problems.

It is these basic principles that the United States technician must take with her to a foreign land if she is to leave any permanent imprint of her work there . . . basic principles of bringing about any change in the living habits of a people and in their thinking; basic principles in human relations that govern a way of living; basic principles in the performance of small skills that may lead to larger practices.

She must forget, if she can, her dependence on machines and on plenty. She must be prepared to forego satisfactions that come from large numbers of accomplishments. She must be ready to accept change as slow, but nonetheless rewarding.

Her challenge will be great.

Relationships Within the Country

Most American home economists who work in technical assistance programs have persons who work closely with them termed by the technical assistance program as national co-workers.

The relationships which the American technician establishes with this person will determine to a large degree the success or failure of the work both of them will do. She will be on very delicate ground in such relationship. The native home economist has been selected presumably from the ranks of those deemed by local governments as fitted to set up a home economics extension program. It is only human to suppose that while she needs and wants help in doing this, she does not want the American home economist to take over.

This is as it should be since the development of a program in home economics will be her responsibility. It is to her that her people and her ministry of agriculture should look for program leadership.

A Study in Human Relationships

An excellent case in point is that of -- let's call her Mary Brown.

Miss Brown had had several years of successful experience as a supervisory extension agent and as a county home demonstration agent prior to her assignment to "X" country.

While she knew basic essentials in home economics Mary was aware that in any country, including her own, one has to begin an extension program where people are and with what they have. This philosophy had much to do with her success, both in county and state positions in the United States. It was to have an important bearing on her new work, too.

Mary arrived in her host country in early spring. From the air she had first glimpsed the bright green of the countryside. Nothing could have been more beautiful after her long trip by plane.

She was equally glad to see the smiling faces of those who had come to welcome her. Two of the men who greated her were agriculturists of the country. The third person was introduced as Miss Maria Andros, her national co-worker.

As they drove from the airport into the city, they talked of many things. Mary exclaimed over the beauty of the area through which they were passing. Her companions were pleased with her appreciation of her new country and soon were talking warmly with her.

Mary learned that Miss Andros was a trained veterinarian. This was somewhat of a surprise to Mary who knew little about veterinary science. "Well", she finally reasoned to herself, "at least we will have some knowledge in common -- animal nutrition!"

The next day Mary began to meet other agricultural leaders. As she talked with each official about the country and its problems and his own special interests, Mary always brought Miss Andros into the conversation. Sometimes it was to invite a comment on the idea being discussed, other times it was to ask her opinion.

"She knows horses", one official said, smiling. Mary replied "I've also found she knows people, and that is a fine beginning for an extension worker." A look of appreciation from the young woman was Mary's reward for this remark.

There was so much for Mary to learn about the people, their ways of living, their opportunities and their problems. It was to Maria that Mary turned for much of the information she needed. The young woman, however, had been brought up in the city and had not experienced much of village life.

Mary and Maria Go to the Field

"Why don't we spend a month in the field together", Mary proposed one day, as the two talked over some of the rural people's problems. "We can meet some of the rural leaders and we can talk with the people about the help they think they need in their homes." All this was through an interpreter, because the two knew no language in common although each had begun to study the other's language.

Agricultural officials seemed glad that the two wanted to get this first hand knowledge of village life, and helped to prepare their way by writing letters to some of the local agriculturists about their coming.

They went to several provinces in the country and to a number of villages in each. They talked to officials and the village leaders and also with the common people.

All this time Mary had seldom mentioned home economics, even to Maria, but she had kept her eyes open as they talked and travelled, and she had been a good listener.

They went into the simple homes of the villages. Much as she'd been told, Mary was not always prepared for what she found. She could see her companion was learning, too, about the dire poverty, the poor sanitary and health conditions, the lack of good nutrition, and inadequate housing.

It was a long trip and the two experienced some very real hardships in eating food that wasn't always as well prepared as they were accustomed to; in sleeping at times in rooms which could have been cleaner; and in driving long hours over difficult roads.

But any hardship seemed minor in the light of what they had learned together about village life and village people. Experiencing together the problems of the people, the two women found they could talk easily about them, with little or no reserve.

There was no defensive attitude in Maria's frank analysis of what she had been a part of for a month. And Mary, on her part, had a feeling that to Maria at least she had become a sympathetic part of this new country.

As they travelled, each had come to know much about the other. They had discussed home economics principles and ways they could be applied to the problems of the country and its people.

There were many strands in the network of relations Mary and Maria built on that trip. "I hope they are strong enough", Mary thought, "to hold the work we are to do together."

It was a good beginning for a home economics extension program. But it was only a beginning and both of them knew it. They had met problems first hand; they had learned something of the people of the country and their resources; they had learned something of the people's achievements under difficult conditions.

Now they must begin a difficult task, the planning of a home economics extension program, based on the needs and desires of the people.

It would require much thought, many anxious hours and much hard work. "Together", they said, "we can do it."

Learning from each other, depending on each other, respecting each other, there wasn't much that the two couldn't do.

They also knew that their first field trip out in the country was only the first of many they would need to make if they were to keep abreast of the changes and thinking of the people.

Time passed and with it many difficulties. As the new work was started in the villages and young women were trained to become home agents in the expanding program, Mary stayed more and more in the background.

When the home agents would ask her questions she would casually turn to Maria for the answers. She did this also as the two worked with agricultural extension administrators, supervisors and county agents. More and more Mary could see that all these officials had begun to depend a great deal on Maria and to give her added responsibilities. Mary had her reward in seeing Maria's development under this added respect and responsibility and in knowing that she had played a part in Maria's growth.

Sometimes, Mary had occasion to talk to high officials in the ministry of agriculture. She told them of the fine work Maria had begun, and always she expressed appreciation for the cooperation Maria had had from her able agricultural associates and co-workers.

Many people came to expect much of Maria. And somehow or other, she began to live up to what was expected of her. It wasn't always easy. It wasn't always easy for Mary either. At times it would have been simpler to have given an answer, or made a decision herself. But Mary knew she wouldn't be in the country very long. She also knew that any home economics extension program would be just as strong as the leadership left with it. And Maria was this leadership!

Mary is back in the United States now. People still talk about her work in "X" country. But Mary always points out that most of the credit is due the wonderful leader she was privileged to work with.

This case study is largely the story of the relationships that made for good work between Mary Brown and Maria Andros. It's a story that could be true any place, anytime.

It is to help bring about such working relationships between the American home economist and her national co-workers that this publication is written. It is addressed to the American home economist who goes to a foreign country to help set up a home economics program.

It is equally addressed to the national home economists, the Marias, and their associates who have the major responsibility for setting up a home economics program in their country.

As an American home economist assigned to your host country, you have a primary responsibility to advise your co-worker and her associates rather than work directly with families. You will advise on principles, methods, and such home economics subject matter that is world wide in its application.

As a Maria or native member of the country's home economics staff, you have a primary responsibility for developing and carrying out a program based on the needs of your people and their resources. This is your country's program and not your own or the American home economists'. Courtesy, consideration, sincerity and genuine interest will help all of you to do a good job together.

Learn About Your People

There is an old saying in England, "to teach John Latin it is necessary not only to know Latin but also to know John."

While you need to know much about home economics you need maybe still more to know about the people you are to teach, their families, interests, opportunities, problems and resources.

An Indian home economist*, speaking to home agents in India, counselled them thus: "When you are studying the background of the village you will come across many needs. Some may be simple and evident, some may be hidden, some may be unrecognized and some may not be felt at all. For instance, women need help against an infestation of lice, the children may need a cure for sore eyes, scabes may have to be treated, smoke in the kitchen has to be prevented. All these needs will be easily observed; but there are many other needs arising out of poverty or ignorance or both which may not be seen at all. You as home agents must be alert to find such hidden needs, perhaps of diet in relation to malnutrition and disease, and of age-old practices and superstitions growing out of ignorance."

Creating a Desire for Change

Part of the work of a home agent is to create a desire in people for change in a good direction. She must be careful, however, not to create a desire that cannot be fulfilled, either because of custom or lack of money or other resources.

Desires that are unsatisfied sometimes cause frustration which in turn may break down the villagers' trust in the agent. She must also avoid making any promise that cannot be kept. Villagers have suffered from broken promises. If there is a good cause why a promise cannot be kept, the home agent must be sure the villagers know why.

There are always reasons why people are as they are and why they resent change. Many of these reasons are probably good ones, growing out of their own experiences. However, some have their base in tradition, superstition or prejudice. The home agent does not have to accept these, but she can always try to understand how and why these affect the actions of her people. She knows, of course, that it is only through education that they can be changed.

Lethargy, induced by little or no income, climate, poor physical health, inadequate food, and lack of hope is a problem to any agent who seeks to change the thinking and the attitude of the people with whom she works. Again, a solution lies in time and basic education.

---

*Millions Still Go Hungry, Food and Agriculture Organization, Rome, Italy.

There will be many problems you may never solve. Some of these are human ones on which progress is discouragingly slow.

One FAO home economist*, up against age old prejudices and inaction, decided her best work had been that of a catalyst. She had provided suggestions and ideas. Some, perhaps all, had been rejected. But some stay in the minds of those who hear them. Later on, someone else, perhaps one of their own number who had travelled elsewhere or who had been on a fellowship abroad comes back with the same idea. This is remembered, people think about it again, and a seed may sprout.

It is a slow way, but change is usually slow, if enduring.

Leaders Multiply the Efforts of Agents

Every agent will find that in every village there are few people who influence their fellows. Wherever two or more people are brought together, a leader appears. The leader in one situation may not be the one to whom people look in a different situation.

You can help the agent know how to recognize the pattern or influence in her village. It is not simple. There is so little known about the way in which a leader leads or the reasons people follow. However, it is known that the agent who works through leadership vastly expands the influence of her teaching. No matter what the subject matter is there will be ways to utilize the efforts of leaders to extend it.

When a village woman accepts a change in her way of preparing a meal for her family, she will not think of herself as a leader. But when others know about and like what she has done, they begin to look to her as one.

When a village woman overcomes a natural shyness to ask a question of the agent in a meeting, the act may be a first step to more overt leadership. When a village woman, apparently much interested in what the agent is teaching, is asked to help the agent in the demonstration, the beginning of leadership may be present.

When a village farmer adopts a better way to grow a poultry flock, and neighbors begin to see the value of his improved practices, the idea is likely to spread. All these leadership activities may seem small in themselves, but they may mean that the agents' efforts have been multiplied many times.

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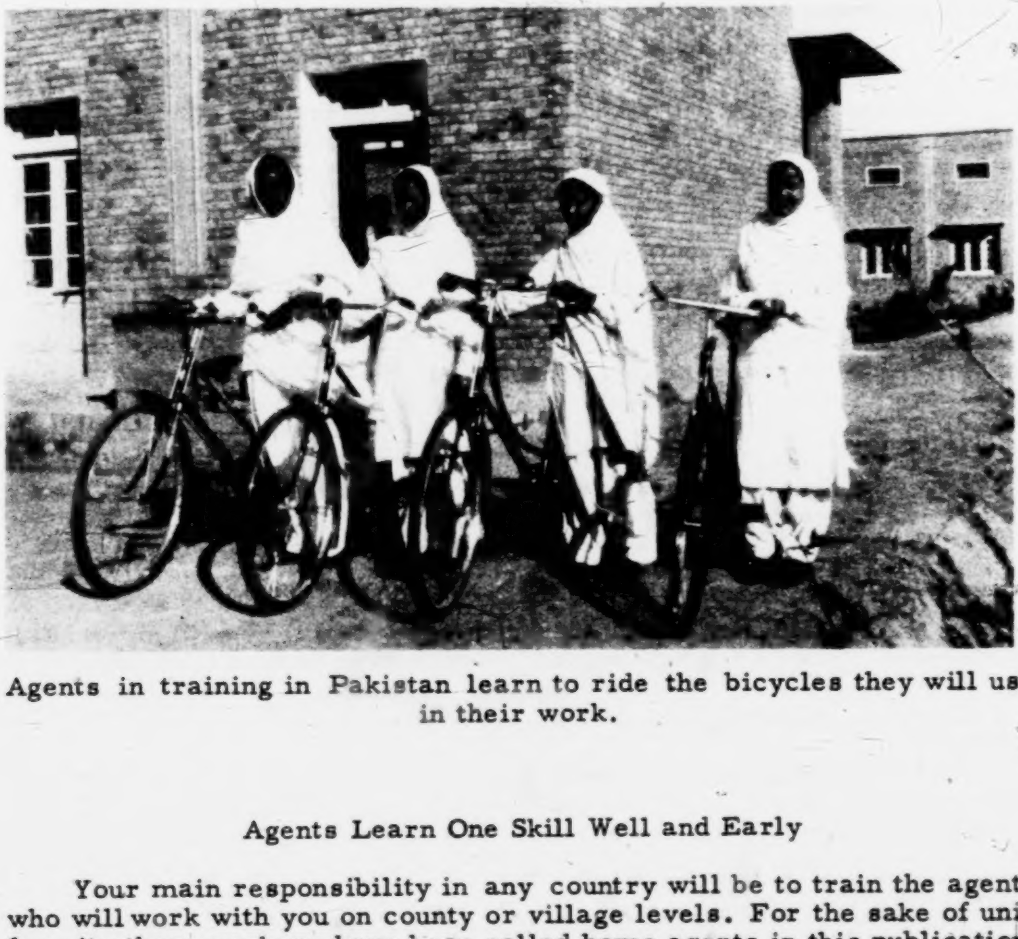
*Millions Still Go Hungry, Food and Agriculture Organization, Rome, Italy.

In Mexico a great educational program on illiteracy was based on the slogan "Each one teach one." A home agent, fully utilizing existing natural leaders, can perhaps realize a different aim -- "Each one teach one -- or even fifteen!"



Agents in training in Pakistan learn to ride the bicycles they will use in their work.

Agents Learn One Skill Well and Early

Your main responsibility in any country will be to train the agents who will work with you on county or village levels. For the sake of uniformity these workers have been called home agents in this publication.

It was an old principle in pioneer days of extension work in the United States that a new, inexperienced home agent must be trained before she arrived in her new job to demonstrate how to do at least one thing very well. There was a good reason for this.

Sometimes it was the making of peanut butter from home grown peanuts if there was little or no knowledge in rural areas about the process; sometimes it was building a fireless cooker, for which there was great need at a time when farm women worked in the fields alongside their husbands, and there was little time for cooking.

Always the young agent was prepared to give some demonstration that would help her develop self-confidence in teaching something the women and girls wanted and would find useful.

In many parts of the United States new home agents still spend two or three weeks in the state office before going into a country either as an assistant or a regular home demonstration agent. Here they are trained by subject matter specialists for this type of teaching.

The foresightedness of administrative and supervisory personnel in arranging such training has paid off handsomely. The confidence the new agent feels in the subject matter she can teach carries her through her first difficult months. By then she is acquainted with the people and they accept her for the fine person she is.

As a trainer of agents you, too, may find that a few tricks of the trade learned early may give a new agent the self-confidence she needs to begin work. Few subjects offer more possibilities for this purpose than home management.

A new home agent in Japan made an improved stove which was popular with farmers and their wives and gave the agent an entree later as she helped them with other equally fundamental problems. How to make an iceless refrigerator with resultant savings of food is an excellent first demonstration subject for the agent to know.

The construction of a fireless cooker and its adaptation to local methods of cookery could be another valuable demonstration. The preparation of a one pot meal, with the use of native foods is another skill useful in establishing an agent's reputation in a village. You will, of course, know of many other valuable skills which could be useful to the agent during her first most difficult months.

At the end of each section of this publication there is a list of method demonstrations which may be given in a particular subject. Many of these, depending upon the needs of the country and the desires of the families, could be that "one thing learned well" which helps the new agent become known and liked as an authority on the home.

Child Care

> "A new born baby is a stranger in a strange world.
>
> The little stranger needs the love of a mother and a father.
>
> A good mother and father can help the baby grow into a fine man or woman.
>
> They must work together to help the child grow into a fine citizen.
>
> They should make a happy home the baby needs in order to grow and develop normally."*

Few subjects will challenge the interest of parents or home agents more than that of the child and child care. Love of their children and a desire that they be healthy and well is universal among fathers and mothers.

Some countries lose one half of their human beings before they are sixteen years of age, which is a great personal and national loss. Every country should try to prevent this economic waste of manpower and its attendant sorrow and human misery.

Begin with Understanding

Any work in child care, if begun with understanding, will be well received by the people. Every country has deep seated traditions, customs and beliefs centering around the rearing of children. Some of these will be religious in nature; some will have been handed down from parent to child; others will have grown out of community custom. You will not need to accept such age-old beliefs as truth, only learn to work within them.

A case in point is the story of Dr. Seaman A. Knapp as he began agricultural extension work in the southern part of the United States. He learned soon how southern farmers felt at that time about planting "in the moon." He never argued about the subject. Accepting the farmers' belief that certain times in the month, according to the lunar calendar, were good times to plant, Dr. Knapp merely said, "Do this also" and gave them his recommendations on depths to plant, fertilizers to use, and other cultural methods.

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*"Our Baby", South Carolina State Board of Health, Columbia, S. C.

Of course, you will have many facts established by research which you can recommend. If you start extension work with discussions on children, an absorbing subject for parents, this may be the beginning of teaching other subjects through a family approach.

As with any problem, you will want to talk with village leaders and others in the community. This is especially necessary if you hope to attack the health problem of children.

What factors bring about the interest or lack of interest of the villagers in child care? Is it a high death rate?

Is the health problem of children a chronic one or has an emergency health situation created an awareness? Is there apathy on the part of parents who think their problem hopeless? Are there local facts which would point up a specific problem? Did local people have a part in collecting such facts? How have such facts been used previously?

Establish Confidence

Early in her work in child care it is important that the home agent establish a feeling of mutual trust and confidence between herself and the members of any group who are to benefit by her teachings.

There will be many ways in which a conscientious worker can help to develop such a feeling . . . many little ways, even comments such as these:

"Yours is a beautiful baby." "You have been a good mother to have such a healthy baby." "It can be seen that you have a most intelligent son." "It is good to see that you have grown so many yellow and green vegetables. Your children will grow strong as they eat them." "I want your opinions on what we are to teach in child care." "What are the problems of children in your village?"

As the agent listens to what her people tell her of their home, their families, and their problems, she will find the key to their hopes (what they want of life) for their children. She will have been bringing about also a relationship with them that is strong enough to carry her educational work further.

Use Methods to Suit the Situation

Methods to be used will 'vary with families, their situations, problems and interests. A way to work with one parent or group of parents may be entirely inappropriate to use with another individual or group of individuals.

You can help each agent develop methods suited not only to the level of maturity of each group but to her own skill in leadership. The role of the home economist in Jamaica is sometimes that of a story teller as she works with parents on child care.

"Once upon a time there was a woman named Mary who lived with her family of five children near Kingston, Jamaica."* Thus begins a case study, around which recommendations are woven on a child's health, his food and his behavior.

Extension agents in India use puppets to dramatize the importance of some subjects. They have found that villagers' skill in making and using puppets allows a wide participation of families in the actual teaching of subjects relating to the child and his family. The routine care of children -- feeding, bathing, clothing -- could be taught easily with puppets.

Other subjects of a more difficult and delicate nature, such as the role of grandparents to their children and grandchildren, might be particularly well suited to the use of puppetry.

Relations between family members, such as three generations in one household, or brother-sister, parent-child relationships, and other family problems could be studied through the use of puppets.

Emotions are powerful stimuli to learning, or to changing attitudes. When villagers laugh or cry at the puppets' plight they are likely ready to think through their own similar problems. Role playing, in which parents assume the role of each other and their children, may have value in some groups.

There will be many method demonstrations the home agent can give in child care that will interest parents. A list of suggested ones is included at the end of this section.

As you train a home agent in methods for teaching child care, emphasize the importance of the agents' using only those methods suited to the group to be taught and within her skill to give.

Group Discussion

While group discussion may be used effectively in teaching many subjects, it is particularly adaptable to child care.

---

*Bringing up your Children, by Angela Waterlow, Public Welfare Foundation, Kingston, Jamaica.

One topic in the United States which has been taught in group discussion is The Rights of a Baby. Adapted from this the following could serve as a basis for a discussion in which parents develop their own ideas of the rights of their children in their own country.

"The Rights of a Baby"* --

"Well born

A baby has the right to be born free from disease.

Love and Happiness

A baby has the right to be loved, both by his father and his mother. He has a need of this love. It is the mother's and the father's job to keep the baby well and happy. A happy baby is a healthy baby. The most important thing in a baby's life is to know that he is loved by his father and his mother.

Training

A baby has a right to be born in a clean home. He has a right to clean water, clean milk and clean food. He has a right to some beauty in his home and surroundings. Cleanliness is one kind of beauty.

Eyesight

A baby has a right to his eyesight. Silver nitrate drops should be put in a baby's eyes just after birth. This is to help keep babies from going blind.

Birth Registration

The baby has a right to have his birth registered. It is a good thing to be a registered citizen of a country."

What parents in India want** -- The following "wants" of Indian parents for their children would be a good discussion topic in any country as that country's parents take a look at their own desires for their children.

- That the children learn to read and write.

---

*"Our Baby", by Laura Blackburn and Julia Bronson, South Carolina State Board of Health, Columbia, S. C.

**Adapted from "How to Bring Up Your Child", Jamaica Society for the Prevention of Cruelty to Children, Kingston, Jamaica.

- That they have good food, enough so the children will be strong and disease resistant.

- That they have good clothes, in sufficient quantity to protect the children from the weather and promote health and enjoyment of life.

- That they have some money for books, personal adornment, travel and to support activities, such as schools and religious groups.

What to Teach in Child Care*

Your own attitude, and that of all home agents, toward child care is important. You do not know all the answers, but like all parents you are searching for good methods to keep children well and strong. You do have some facts from tradition and experience. Together through a mutual exchange of information you may enrich each others' lives and those of the children.

What you teach about child care depends so much on the country, its resources, its problems and you. All parents want their children to be happy and to grow up good and useful men and women. The right food, clean clothes and even good schooling are not enough alone. They need to feel that they are safe, loved, treated fairly and firmly, and given a good example

Feeling Safe

If a child is brought up by his father and mother with his brothers and sisters around him he will know where he belongs and he will feel safe. A child changed from hand to hand does not know what to expect. A child's father and mother in most cases are the best people to bring him up.

Some grandparents are very good. Others may be out of date in their ideas, or may spoil the child or be too strict.

A child who has been moved from one home to another may never feel safe for long and be full of fears.

If you have to send a child away for a time, talk to him kindly and tell him why he has to go. If a child comes to you from another home, remember that he is frightened. Give him more love at first and help him feel at home.

---

*Adapted from "How to Bring Up Your Child", Jamaica Society for the Prevention of Cruelty to Children, Kingston, Jamaica.

Love

Children need to be loved by their father and their mother. The best upbringing for a child is in a family where he feels wanted and loved.

Firmness

Children need firm treatment. Love them and treat them kindly, but be firm, too. A child will want what is good for him if he is taught in many different ways.

- Show clearly that you know what you want him to do.
- Don't change your mind, some days telling he must obey and other days letting him feel it doesn't matter.
- Praise him when he does well. Then he will want to do well again.

Good Example

Children learn most of all from what they see around them. Some parents expect behavior from their children which is better than their own.

If you quarrel, they will quarrel.

Set a good example for them.

Always tell them the truth.

If you say please and thank you to a small child, he knows that is right and will copy you.

Your Child's Health

Be as clean as you can with the baby, his surroundings, his clothing, and his food.

If you live in the country where water is hard to get, give the children a good wash all over with a little water in a pan.

Every child's teeth should be brushed after meals. (If there is no money for tooth brushes use green wood chew sticks.)

Every child's hair should be combed or brushed every day. Little children will soon learn to do these things for themselves, but you can set a good example by doing them yourself every day.

Teach them to wash their hands before eating and after using the toilet. Dirt may get on the hands and then on the food and so into the mouth. This causes many diseases.

Cleanliness in the House

Clean bed clothes are as important as clean clothes for the body. Even children who must sleep on rags could sleep on clean rags. Sun the bed clothes as often as you can.

Rest and Play

Children need regular rest. The smaller they are the more sleep they need. Babies need sleep most of the day and night. All young children need rest every day.

Let children sleep in separate beds if possible. Use a box for a baby if you cannot make a crib or cradle. If you live in a crowded home and the children share a bed, teach them to sleep "head and foot". In this way they will not be breathing and coughing in each others' faces all night. This may prevent many head colds.

Children need play. Don't think they are idle when they play. Playing is the way children use their hands, their brains and all their senses. It is as much a part of their education as going to school.

Toys are important to them. These do not need to cost money. Every father can make simple toys like blocks for building, wagons with wooden wheels, and wooden ships. Mothers, too, can provide play things such as unbreakable cooking utensils, stuffed dolls and animals from scraps of cloth. It is good for children to have some possessions of their own. It teaches them to care for them, and to respect others' possessions.

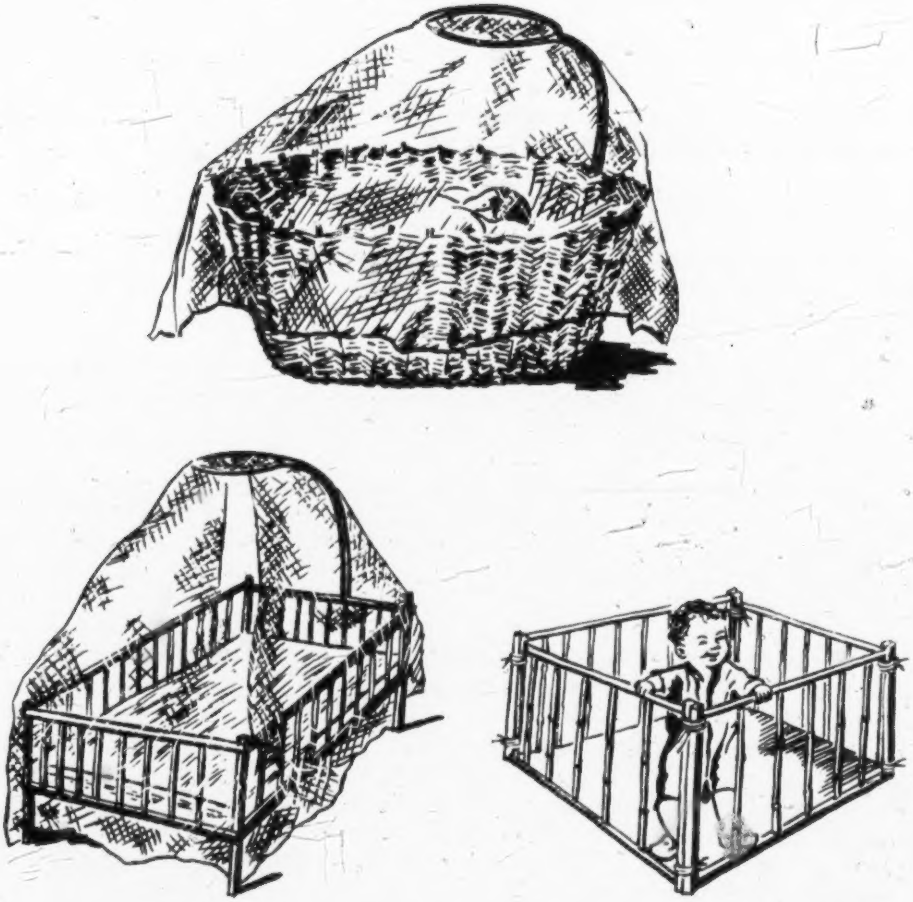
When children are not resting or sleeping let them run about. Exercise is good. It develops their bodies.

Work

It is right and good for children to take a share of the work of the home when they are big enough. Too much work makes them tired. Praise them when they do well. Show that their work is important to the whole family.

Fresh Air and Sunshine

Children need plenty of fresh air. Sleep with open windows. Night air can do no harm. Fresh air strengthens the lungs and the whole body. Don't be afraid of the sun. Sunshine is good for children. Small children may need shady hats to protect the eyes.



Homemade equipment for the small child allows him to get sunshine.

Daily Food Needs for Growing Children*

A child needs sunshine every day. Some babies have bowed legs because they do not have enough sunshine or sunshine foods, such as cod-liver oil or other fish oils.

A child needs vitamin C each day. Every country will have some source of this in potatoes, tomatoes, citrus fruits, or other fruits or vegetables.

A child needs some kind of whole grain cereal each day. This could be rice, wheat, rye, barley, or other whole grain food.

A child needs some protein foods each day. This could come from milk, soy beans, cheese, eggs, lean meat, fish or other protein foods.

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*Adapted from "Our Baby" -- Ibid.

A child needs yellow or green vegetables every day. These help the child grow and keep well.

Food for the Baby and his Nursing Mother

You will want to obtain the recommendations of the health authorities in the country on feeding the young baby. The following information may help you as you talk with such authorities.

A baby needs plenty of pure water. A pint or more of water should be boiled each morning, put in a clean covered jar, and given luke warm to the baby as he needs it.

A baby needs a sunshine food every day. Fish liver oils are sunshine foods. Your health authorities will tell you when a baby may be started on such food. If no fish liver oils are available, the baby could at least have some sunshine every day, a little at a time. He needs this even if he gets the sunshine foods.

A baby needs some kind of vitamin C food. This may be citrus juice, tomato juice or the juices of other fruits. This may usually be given to a baby as early as 3 months, if a little at a time is given at first -- a teaspoonful gradually increased until the baby is taking about 2 or 3 ounces. (One ounce is about two level tablespoons). Tomato juice is only half as rich as orange juice in vitamin C, so twice as much will be needed. Canned or bottled tomato juice may be used when fresh juices are not obtainable. The juice of citrus, other fruits or tomatoes should be strained before it is given to the very young baby.

A baby needs some form of cereals, whole grained, if possible. This may be rice, oatmeal, rye, whole wheat or others. These should be cooked at least an hour and strained through a strainer or thin cloth. They may be given to baby when he is 3 to 4 months old, one teaspoon being given at first at mid-morning feeding. A little more may be given each day so that when he is seven months old he will be eating two to five tablespoonsful.

A baby needs vegetables and fruit. They help him grow and keep well. He may have the juice in which vegetables cook when he is about 3 months old. But this should not be greasy or otherwise highly seasoned.

Cooked vegetables mashed fine and strained should be fed the baby by the time he is about 4 months old.

Vegetables may be given him at a morning or afternoon feeding. These could be begun with one teaspoon of vegetables at a feeding, and a little more given each day until when the baby is six months old he is eating 2 tablespoonsful or more each day.

Greens such as turnip, spinach, or mustard are good. These may be fed baby 4 or 5 times a week. On other days he could have beans, peas, carrots, squash or other vegetable that can be strained. Sweet or Irish potatoes may be used in place of cereals on some days.

Vegetables should be cooked in clear water without grease. The water should be boiling when the vegetables are put in to cook. Use just enough to keep vegetables from sticking. They may be slightly salted, and cooked just long enough to be tender. Potatoes may be baked or boiled and mashed.

Cooked fruits may be given to the baby when he is 4 months old. It should be stewed and mashed through a strainer. Peaches, apples, prunes, pears and many other fruits may be used. Raw ripe banana and scraped apple are good.

Baby needs eggs to build blood and other parts of the body. One-fourth teaspoon egg yellow may be given to baby when he is 3 to 4 months old. He can be given a little more each day until he is eating all the yolk of an egg. It may be given with the cereal or vegetables.

By the time a baby is 9 months old he may have a whole egg. The egg should be cooked slowly, either soft or hard. It should not be cooked in fat.

A baby needs to chew some hard food like bread to make strong jaws and teeth. He can have hard crusts to eat but not when he is lying down. They may choke him.

A baby needs some kind of meat -- lamb, chicken, pork, liver and fish. These meats may be boiled, broiled, baked and then ground or chopped in small pieces. Baby can have lean beef and other lean meat foods when he is seven to nine months old.

When baby is being weaned, goat's milk is as good as cow's milk, but both goat and cow's milk need to be clean. Since milk does not keep well all milk should be scalded, then covered with a clean cloth and placed in a cool place.

The weaning of a baby must be gradual. The loss of close contact with the mother during the weaning process is a source of real anxiety, fear, and disappointment for the infant.

Recommendations in Jamaica* say that if a family cannot buy, or produce, good milk for the baby it is much better to continue breast feeding the baby until the child is 2 or even 3 years old. But other foods should be given, starting at about 3 months.

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*"Bringing Up Your Children" -- Ibid.

The best food for a healthy baby is a healthy mother's milk. A mother should do all she can to nurse her baby. A nursing mother needs more food now than before her baby was born. Now she needs food for herself and to make milk for her baby.

Everyday a nursing mother needs:

- Some form of milk, if possible. Milk made from soy beans is good.
- Some whole grains or cereals.
- Some form of protein food, such as soy beans, lean meat, fish, cheese or eggs.
- Green and yellow vegetables.
- Some form of vitamin C food, such as tomatoes, citrus fruits, other fresh fruits.
- Many drinks of pure fresh water.

Food is only one need of a nursing mother. She needs rest and eight or more hours of sleep each day. A tired mother cannot make good milk. She also needs to be clean and happy. When she worries she cannot make enough good milk.

Making a Playpen

"I cannot work because my baby gets in my way." The Japanese mother as she says this, is somewhat typical of mothers all over the world.

A playpen can be a very useful article of furniture for both mother and baby.

It will help the baby develop the habit of playing safely by himself as he sits, stands, walks or lies down in the pen. It helps also to reduce the mother's fatigue and frees her from worry about the baby as she works efficiently nearby. The baby will soon become familiar with it and like it. The playpen shown in Diagram A(c) is an adaptation of one designed in Japan.

In Japan it was made from wooden fruit boxes. The material for a playpen, however, can be varied according to the locality. Bamboo or other round sticks that are available could be used to make a playpen. To make it easily moveable, home agents in Japan fasten strong strings on each corner of the side frames. Such frames can be taken down by unfastening the strings.

A Baby's Clothing*

A home demonstration agent in Japan teaches mothers these facts about clothing for a baby.

Baby clothes should be made so that they can be easily put on and taken off and of a material easily washable. Beautiful baby clothes may be pleasing to the eye, but they are often expensive, inconvenient and hard to launder.

Baby clothes should be big and loose enough so that the baby can move freely. A collar is to be avoided and the material cut so that sleeves are of one piece with the body section. Strings should be used instead of buttons. For a new-born baby, white or a light color is best.

Diapers should be made of soft material and as many made as necessary. If the diaper is kept clean and free from smell, both mother and baby are comfortable. A wet diaper should be soaked in water and washed clean with soap. When the soap has been rinsed out the diaper should be dried in the sun. It is well to boil diapers frequently to kill bacteria. An apron to protect the front of baby's clothes saves much laundry labor. Good care helps make a well, happy child, and a happy child is a joy to the mother and father.

Suggested Method Demonstration in Child Care

1. Bathing a baby.
2. Making clothes for infants.
3. Preparing baby foods -- using equipment available locally.
4. Make playpen for baby.
5. Making furniture for childrens use.

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*Clothing the Baby, K-AV-143, Extension Service, Ministry of Agriculture, Tokyo, Japan.

FOODS
AND
NUTRITION

FOODS AND NUTRITION

Few subjects offer more opportunities for satisfying work on a basic need of people than foods. The necessity for food is universal, of course, and the need for more and better food is almost universal. Understandably, it is a subject in which all people are interested.

The first step in planning foods and nutrition goals is to enrich your own background information about the area where you are working, its people and their resources.

A second step in helping to build a program in better nutrition for all the people of the country is partly a psychological one. You have to convince yourself that any program to evolve must be that of the people for whom it is intended and not your own. At the same time you cannot minimize the part you as an agent or village worker must play in leading and guiding families to recognize their basic problems in foods and nutrition and to work out some solution for them.

A woman from India prepares food for her family.

Background Information Basic to Program Building

How urgent is the need for educational effort in foods and nutrition? What knowledge do families already have on the subject? What are the kinds of foods they already grow and like? What are present methods of cooking? Are there limitations to the kinds and amounts of food which may be grown? Are there religious taboos which may limit the use of some foods, such as meats. If so, what are other sources of protein? What are the weaknesses in the present food supply? Are they the kinds an educational program can partly remedy?

As you and the village agents talk with representative families in many areas and as you come to know village leaders, you will be adding to your knowledge of available resources -- human, material, and natural. At the same time, you have been helping families learn of your interest in them and their problems, and your interest in and knowledge of foods and nutrition.

A young woman from Pakistan prepares food at the door of her home in a desert village.

As you sense families' feelings about foods, find from them what phases of the subject they want more information on; when they want it; and how they want it given. Will it be something for youth to carry over in its work? Will men and women want to take up food problems together in groups? Or will the subject be undertaken largely with homemakers? If so, what part can their husbands play? Will you teach a few individuals and get their help in spreading information to all families?

Once such questions are resolved satisfactorily, you are ready to plan some definite steps with the villagers themselves. Whether this planning will be with individuals, in groups of village leaders or in mass meetings will depend on the strength of the relations you have built up in the villages, your knowledge of village leaders, and their wishes in the matter.

The People's Involvement in Planning

Always it will be the villagers' decisions as to the type of work they want in foods, the time and place it is to begin, and the ways it is to be done. Their involvement, from the early beginning of planning, through the carrying out of any project will be important to the success of a program. In some instances, village leaders may want to survey needs and interests before committing themselves to any action, planning or otherwise. Listen as you sit in on local meetings, called to talk over problems. Were food problems named? Did they talk about their resources to meet these problems? Did they express themselves on ways they'd like to begin? A blackboard can be helpful in such a meeting. As a village leader notes the things that are said in the meeting on this, each person will feel that the group has listened. All may not be able to read, but they will know that their contribution has been noted. As a local group decides on things to be done, many of these can be broken down into specifics.

If a major problem is adding the foods the body needs each day to the family's one-pot meal, then a specific way to attack this may be to plan a series of demonstrations on the one-pot meal, in which other foods are included. You can begin in involving the group in carrying out a program as well as planning what is to be done. So you help the group to decide where such demonstrations will be held, who will get the place ready, who can bring the utensils needed, and who will bring the cereal or rice, oils, eggs, cheese, tomatoes, onions, peppers.

It will be important that you use only the kind of utensils for your cooking that the homemakers use for theirs when they try what you have shown them. An advisor asked a homemaker in Greece, "Why have you not cooked the dish I showed you how to make?" The reply: "Because I didn't have an aluminum pan like you used!"

Involving Local Leadership

As you show them ways in which they can make their one-pot meals more nutritious, you will have been talking with them about the methods they've already used in doing this. All this will be in a friendly, informal way.

Get one of the group to cut or peel, or stir the pot for you. It may be the one whose eyes have lighted up most as you've talked. As she stirs the food she stands before the group. This may be all you will ask of such leadership the first time. At the next meeting ask her help again and get her to answer the question one of the homemakers has asked. Thus she will have expressed herself to the group.

More and more as you involve the women in helping with a demonstration and in expressing their viewpoints in meeting, you will have begun a leadership program. Soon the women, will have no hesitation in repeating what they've been a part of to a group of their neighbors. "Each one teach one" became the great slogan in Mexico in a drive against illiteracy. "Each one teach one -- or even a dozen" may be your contribution to home economics education through a full use of every woman's talents. As you've talked informally with the group while you've worked, you will have brought up related subjects. Some of these may be links that will arouse the group's interest in further help at later dates.

How was the corn crop this year? Was the season right for vegetables, did they dry many of them for winter months? Would they be interested in learning a new method to dry both fruits and vegetables? "Any agent who cannot talk herself into being invited back to give further help has failed in one important point," used to be an old maxim in the early days of extension in the United States.

Evaluating the Results of Nutrition Work

How will you know if your teaching of foods and nutrition has had results? Indeed, how will you know if you've really taught? An evaluation of your efforts may be as informal or as formal as you want it to be. The next time you are in the village, talk with some of the families. Did they cook a one-dish meal? How many families cooked it one or more times? Did the families like it? What did they do to improve the dish you showed them?

As you study their answers, question yourself. In what way was there a two-way communication between me and the women? Was I friendly and informal with the group, so that all felt at ease with me? Could the group hear me from all parts of the room? How many spoke up during the meeting to ask questions or to comment? What did I do to set the stage for the meeting? Were the light, ventilation, temperature and seating arrangements the best possible? Did I involve some of the women in every phase of my demonstration? Did the group taste the food I prepared?

What about your further follow up on this meeting? As you return to this village, keep the memory of this first demonstration fresh with the people. Take pleasure in eating a serving of the one-pot meal one of the women has prepared for her family. Tell a village leader how good she cooked this. Use this as a spring board for other contacts with the village.

Part of the week's supply of bread for her family of seven is stored by this Iranian woman.

"Do you know how to make the cake?" Some Indian girls asked their home demonstration agent in Bolivia. It wasn't, she decided, that they so much wanted cake — as that cake -- in their knowledge of upper class Spanish homes had prestige value. "I taught them cake," she said, "but while I was doing it I talked with them about things they really wanted. I found that they wanted to know how to knit socks and sweaters; that they were interested in ways to wash to keep their clothes looking nicer a longer time; that they wanted to improve the workmanship on their pretty full skirts and blouses." You, too, may find that you will need to start with the thing that interests homemakers at the moment, even though you feel more fundamental needs should be met. But you will be working continually to get at their real needs and interests and you will be establishing a two-way communication with them.

Keep Foods and Nutrition Information Simple

As you work with village agents or others on foods and nutrition, you will want to keep the subject simple and direct, remembering that your food groupings are based on your own culture and your own nutrition knowledge. They will mean little until they have been translated into terms of the food available in the country you are now in.

Foods demonstration being given by a home agent to adult club members in Surco, Peru

You could remember, too, that there are well fed people in every country and that a study of the diet of the better fed people of any country might lead to simple adaptations possible of achievement by less well fed peoples. "Get all to do what some have done well" is a principle that would also apply in good nutrition teaching. In any country there are many foods country people eat and like that you will not hear about until you have been close to the people. Poke, and other wild greens of the South of the United States, were ignored for years by those engaged in educational nutrition work, yet these foods must have always greatly enriched the diet of poor families. As the American Indian began to adopt the ways of the white man he took some of our worst practices, the use of the skillet for frying as an example, and gave up some of his finest habits, such as broiling his meat over an open fire and cooking the wild greens of the desert. It could happen anywhere as cooking habits and eating practices change. You must not be a party to this.

As you add new foods, or attempt to, in your teaching you might combine them with those the family already likes. Babies the world over often turn down completely new food -- but will take a mixture of the new food and the old. Every country has its own beliefs about foods. Some of these beliefs, particularly as they enter into the people's religions, are such that you will tread lightly. In Japan on certain days, and on one's own birthday, bean paste was not made.

It was only when home economics extension work was started that the rural women seem to have forgotten all about such a superstition! Most families probably already know more about what they should eat than they practice. Bridging the gap between what people know and do is your job. Getting people to want to change is a challenge to you.

Training Home Agents To Teach Foods

You ask "How can I train home agents to teach nutrition?" Any answer would vary with the country, its people, their customs, needs and many other factors, including your length of stay in the country and your knowledge of its resources. "We began" said a home economist in Brazil, "with a training school of 3 months for 15 prospective county workers. For foods work we set up 4 kitchen situations in which the girls rotated. Each day each one of the girls in turn prepared the selected foods on a charcoal bucket placed on a crude table. The next day she used an improved homemade stove with fuel box underneath and 3 cooking eyes in a row. The third day she cooked on an improved stove and could use a sink for preparing her vegetables, with a home made wooden rack on which dishes could be placed to dry. The fourth day she used a completely modern kitchen. When the training was over each young woman knew many methods of cooking and would be at no great loss with any of the equipment she might find in the homes of her people."

As you teach village agents and others about foods keep the subject simple and direct. Remember, if you must, that there are vitamins and minerals and carbohydrates but teach that some of this and some of that is a pretty safe road to nutritional health.

Using a Flannelgraph

A flannelgraph may be a graphic way to help agents teach women and girls about the foods the body needs and ways in which they may be prepared.

If magazines are not available from which to cut out pictures of food to use on such a flannelgraph, the workers can draw and color the foods they are to use. Actual samples of foods, if they are available, are always good illustrations to include in your training. If you use foods for this purpose, be sure that none is wasted. Food must not be wasted in any country, any time.

A simple device, to impress the agent with the importance of appealing to as many of the five senses as possible, can also be shown by a flannelgraph. This may be made in two parts. (1) Prepare a cut out blank face without eyes, mouth or ears with flannel or other backing so that it can be stuck to a flannel board. (2) Make separate cutouts of 2 ears, 2 eyes, a mouth, a nose, and a pair of hands. This may be used as follows: 1. As you place the blank face on the flannel board, tell of the need to appeal to each of the senses if learning is to be made easy and permanent. 2. Add the ears to the blank face, pointing out that hearing about foods and nutrition is important, but that hearing alone may not be enough. 3. Add the eyes, noting how much easier it is to learn when you see how a food is cooked, in addition to hearing about its values. 4. Add the mouth to the face, pointing out the importance of the sense of taste in learning situations involving foods. 5. Add the nose to the face, bringing out that the sense of smell contributes to learning. 6. Add the hands to the board, telling of the importance of texture to learning.

Basic Information on Foods

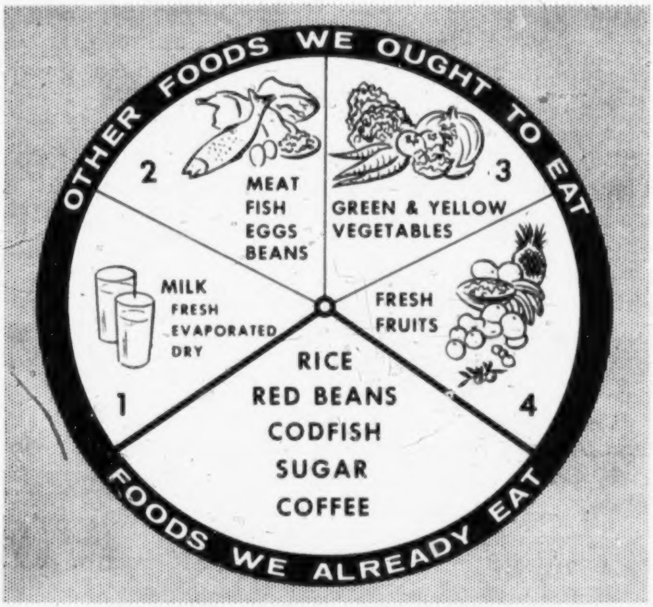
You will have, no doubt, some standard to work toward as you begin an educational program in foods. At the same time, you recognize that such a standard may be useful, chiefly as a point of departure.

You will know, for example, that these are the foods we need every day. 1. Milk, in some form; 2. lean meats, eggs, fish, soy beans, cheese or lentils; 3. vegetables and fruits; 4. breads and cereals -- (whole grain wheat, barley, rye, rice). These are the foods that keep us well.

But you will also know that it may be a long time, maybe never, before all people have all the four groupings of food.

So you begin with what the people now have, helping them to improve the foods they now use, helping them to add other food essentials as they become available through better production or distribution practices.

Puerto Rico's nutrition program, being carried out by all educational agencies of the commonwealth, is based on this principle.


OTHER FOODS WE OUGHT TO EAT
2
MEAT
FISH
EGGS
BEANS
3
GREEN & YELLOW
VEGETABLES
MILK
FRESH
EVAPORATED
DRY
FRESH
FRUITS
1
4
RICE
RED BEANS
CODFISH
SUGAR
COFFEE
FOODS WE ALREADY EAT

FOR YOUR HEALTH
EAT ONE FROM EACH GROUP
EVERY DAY
Protective foods for Puerto Rico.

Nutritionists in Puerto Rico make good use of the flannelgraph in teaching food groups to new audiences. Its wheel of food for health is cut along the spokes into five parts. The segment showing the Puerto Rican "core" diet (consisting chiefly of rice, beans, starchy vegetables, dried codfish, sugar, fat, and coffee) is mounted first on the flannelgraph.

The audience is told that most of us eat these foods every day and that they are good to eat but for better health we need to add 4 kinds of protective foods: first, milk; second, meat, fish, and eggs; third, yellow and green vegetables; and fourth, the fresh fruit of the country. As each food group is named and described the teacher mounts it in position on the flannelgraph until the wheel is complete.

Philippine Circular Emphasizes Green and Yellow Vegetables

A Philippine publication may help you with recommendations for one of these food groups. Some information from this follows:

Do you eat at least one green leafy vegetable every day? They keep us healthy, make us strong, help us to resist infection, make good partners with rice and fish, look good, and taste good, are easy to raise, cheap to buy, and are easy and quick to cook.

Selection of vegetables. Choose those that are firm, fresh, crisp, and sound. The greener the leaves and stems, the richer the food value. Leaves should stand upright. They should be free from decay and worm injury.

Wash Clean . . . Keep Cool . . . and Crisp . . . Use green vegetables as soon as you can after they come from the market or garden. If you must keep them a day or so, store them in a cool, damp place away from dust and flies.

To keep crisp, wrap vegetable in clean damp cloth or large leaves, and put in a cool place. Wash but never soak in water. Soaking causes loss of food value.

To remove sand and grit wash quickly in a pan of water.

Tips for cooking. Wash vegetables before you cut them. Cook right away. Do not soak. Cook in a little water -- only what stays on leaves after washing. Cook vegetables quickly. Serve as soon as they are cooked.

Six recipes in which native green vegetables were used were included at the end of this two page leaflet.

Cultural Aspects of Food Changes

As you work with home agents and village people you can be mindful of the cultural aspects involved in a change of food habits. An anthropologist put it this way -- "What a man eats is of course limited by availability but also partly regulated by culture. It is a biological fact that some types of berries are poisonous, but it is also a cultural fact that a few generations ago most Americans considered tomatoes to be poisonous and refused to eat them.

"On the other hand, milk, which we regard as a healthful and pleasing food, is regarded by certain peoples of the earth as either dangerous or disgusting."

A 12 Months' Plan For Home Agents in India*

Needs: Poor health, due to poor diets.

Problems: Too little food grown by the family, poor cooking methods, income too little to purchase needed food.

What should be done.

Encourage families who grow kitchen gardens to grow greens, groundnuts, fruits or one of these foods. Teach families how to cook food properly. Teach families how to preserve and store foods.

What I Will Do (A) In Group Meetings

Give a puppet show portraying a healthy and an unhealthy family and the foods they ate.

Give one program using flash cards on the same subject. Discuss with village women what foods they grow. Suggest how to grow more foods. Present one program on the kitchen garden.

Enlist five families who will follow recommendations on kitchen gardening.

Encourage children to work with part of the kitchen garden as a project.

Enlist five families who will grow a new food as a project.

Give one demonstration -- on cooking a new food.

Plan tour to show kitchen gardens and new foods growing. Have member tell about her project, its cost, work problems and improvement.

Give one demonstration on preserving and storing foods.

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*Example of what agents can do about poor health due to malnutrition, presented at 1st Seminar of Home Agents in Madras State, India 1957.

Enlist five families who will agree to carry a project in preserving or storing foods.

Plan a tour to show foods preserved and stored and have families tell what they have done. Ask families who are taking projects to report on them occasionally at group meetings.

(B) With Individual Families.

Visit families regularly who have projects. Check on progress and problems and assist them when needed.

Encourage families with projects to talk about them to neighbors, in group meetings, on tours and when they have guests in their homes.

(C) With Staff Members Who Will Help.

Enlist the cooperation of the block development officer and village agents in agriculture to take an interest in these projects.

Home Produced Food Helps the Family Eat Better

Studies in the United States have shown that the families who produce their own food usually have more of it than the family that buys its food. They also have a greater variety of foods.

This has been especially true of the socalled protective foods, such as milk, eggs, vegetables and meats.

How much and what kind of food a family produces will depend on the family situation and such factors as kind and amount of land available for growing a garden or caring for a pig or other animal; the age of family members and the amount of their physical activity; and the family's likes and dislikes for certain foods.

Method Demonstrations Agents Might Give On Foods

1. Demonstration in cooking vegetables to retain flavor and nutritive qualities.

2. Egg cookery demonstration.

3. Cooking a one pot meal.

4. Cooking whole grain cereals.

5. Preparing foods for the baby.

6. Foods for convalescents.

7. Meat cookery.

8. Correct drying of fruits or vegetables.

9. Preparing lemon, tomato or other juices for bottling, using bottle capper and locally available bottles.

10. Kraut making, showing (a) the making of a cutter and its use in shredding cabbage; (b) the use of locally made crock for krauting cabbage; (c) the method for preparing the cabbage and adding the salt; (d) the care to be used to keep the kraut in good condition; and (e) the use of the kraut in foods families already like.

11. The use of dried vegetables in one-pot meals.

12. The salting or brining method of preserving vegetables, showing selection of vegetables and step-by-step preservation.

Food Preservation

Few subjects will be more important to the people with whom you will work than food preservation. It will be considered here under four general headings: I. Drying of fruits, vegetables, and meats.* II. Brining or salting vegetables. III. Canning. IV. Storing vegetables for winter use.

I. Drying Foods

The drying of foods is a practice that in some form is almost universal. It is a subject on which there is great interest in most countries and one in which there is need for improvement in many of them.

You will want to study carefully the material on drying (as referred to above) to satisfy yourself that your own information on drying is up to date, accurate and complete.

Then as always you will want to counsel with the home agents and the people. Is this a subject on which more information is needed? Is information needed at this particular time? Would agents and villagers want the latest and best information on the drying of fruits, vegetables, or meats? Are there supplies of such foods available for drying?

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*Drying of Fruits and Vegetables, In process of printing, Extension Service, U. S. Department of Agriculture, Washington, D. C.

A Method Demonstration on Drying Vegetables

A method demonstration is a good way to teach this method of preserving food. The following steps in giving a method demonstration in drying vegetables may be helpful to the home agents or to you in training them. The latest information on this subject is in process of printing.*

Step 1. Getting Ready —

a. Get village people's help in deciding on proper place to give demonstration.

b. Decide on a time best suited for a drying demonstration.

c. See that the people know the time and place and what the demonstration is to be.

d. Get all the equipment and the food ready (well in advance of time for the demonstration).

e. Keep the equipment simple and of a kind the villagers have or can obtain easily.

f. Select a vegetable if possible that is in good supply, or soon will be.

g. Arrange your equipment and food materials on a table or raised planks so that your work can be seen at all stages.

Step 2. Giving the Demonstration —

a. Tell the group what you are going to do.

b. Invite their questions and comments throughout the demonstration.

c. Involve some members or your audience in helping you, being careful that they will not be hindered in seeing every part of the work.

d. Be natural and at ease. Stand straight and look at your audience.

e. Talk clearly and loud enough so that you can be heard by all.

f. Establish some experiences in common with group members, such as how they have dried vegetables in their own homes.

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*Drying of Fruits and Vegetables, in process of printing, Extension Service, U.S. Department of Agriculture, Washington, D. C.

g. Work with your hands in showing the group how to do each step in drying, telling about what you are doing in easy conversational tones.

h. Go through the complete process of the drying of one vegetable.

i. Get one of the most interested members of the group to go through the same process with the same or different kind of vegetables.

j. Invite all who would like to dry some vegetables to do so, as long as time and interest permits.

k. Correct any mistakes tactfully, being sure that the person making the mistake now knows the correct way.

l. Pass the dried vegetable around so that all may see and feel the product.

m. Use the dried vegetables (previously prepared) in some form of cookery already known and used by the group.

n. Pass this prepared food around so that everyone may taste it.

Step 3. Follow up for the Demonstration —

a. Make it easy for the villagers to dry vegetables at home by (1) seeing that any equipment needed is available locally; and (2) leaving some written directions for drying in hands of one of the leaders of the village.

b. Visit the village later. Are the villagers drying any vegetables? If so, is the quality good? Do they know how to protect dried vegetables from dust and insects? Do they plan to plant more vegetables to dry?

c. Fit the practice of vegetable drying into the village plan of improvement, by talking with village leaders and getting their suggestions for further extending work in gardening and drying.

d. Plant the idea, or be receptive to one from the villagers, for providing community drying equipment in a central location.

e. Plan with the villagers for a tour in the fall so that everyone can see the drying equipment that has been made, view some of the foods that have been dried correctly, and learn about the ways each family is storing dried vegetables.

II. Salting or Brining*

Salting or brining may be a method of food preservation that you will want to recommend. It is inexpensive and the vegetables retain a fair amount of vitamins and most of their other food values.

Sauerkraut, made by salting cabbage, is well known and widely used in some countries, notably Germany, Austria and the United States. The salting of other vegetables, while not so well known, has great possibilities. Beets, carrots, cauliflower, celery, corn, greens, lettuce, lima beans (shelled or in pods), peas (shelled or in pods), okra, onions, peppers, rutabagas, snap beans and turnips, all may be preserved by a salting or brining process.

Through salting or brining the homemaker can save vegetables that might otherwise be spoiled. In doing so she can add to the family income and have vegetables for meals when fresh ones are gone.

Salting or brining is easy to do, requires little equipment, and is inexpensive. Most of the food values are retained in salted or brined foods, and they are easy to prepare for meals.

As with other subjects, before you attempt to introduce this you may want to look into some of the practices families already are using in brining vegetables. Does the practice have wide acceptance? Is it one that is economically possible? Salt is expensive in some countries.

Can vegetables be grown in surplus enough to make the practice feasible? Will it be difficult to fit a brined or krauted product into existing food habits and meal patterns? Do families have large containers suitable for brining purposes? Could you try out two or three vegetables yourself before you attempt to show how it may be done? While the process is not an intricate one you will want to be familiar with the method and equipment.

Equipment and Supplies for Salting and Brining —

1. Containers such as large clay crocks or wooden kegs, or glass jars.
2. Weighted cover, may be a wooden lid, a latticed wooden cover or a plate.
3. Wooden spoons and stone or brick covered with melted wax.

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*Adapted from Farmers Bulletin 1932, Preservation of Vegetables by Salting and Brining, U.S. Dept. of Agriculture, Washington, D.C.

4. Cheesecloth (green cabbage leaf can be substituted).

5. Sharp knife.

6. Pure salt and household vinegar.

7. Scales for weighing.

Four Methods of Salt Preservation –

Each method of salting is for different vegetables, with the exception of a few vegetables for which there is a choice of methods. Method 1 calls for small amounts of salt. In method 2, salt is the principal preservative and large amounts are used. Method 3 calls for a weak salt brine plus vinegar. Method 4 calls for strong salt brine plus vinegar.

Methods Recommended for Different Vegetables –

Vegetable	Method No.	Vegetable	Method No.
Beets	3	Lima beans (in pods)	4
Cabbage	1	Okra	2 or 4
Carrots	3	Onions (silver skin type)	4
Cauliflower	3 or 4	Peas (shelled)	2
Celery	2	Peas (in pods)	4
Corn	2	Peppers	4
Greens	3	Rutabagas	1 or 3
Lettuce	1	Snap beans	1 or 3
Lima beans (shelled)	2	Turnips	1 or 3

Five precautions are to be observed for good results.

1. Directions should be followed carefully.

2. Vegetables and salt are to be weighed as recommended.

3. Vegetables are to be covered at all times to prevent the top layer from spoiling.

4. The brine surface is to be kept free from scum and insects.

5. All salted or brined products are to be boiled for 15 minutes before eating or tasting to prevent botulinus poisoning.

The following directions apply to specific vegetables:

Method 1. For Light Dry Salting —

Vegetables: Cabbage, turnips, rutabagas, lettuce, tender snap beans. Select good quality, trim off outside leaves of cabbage and lettuce heads.

Preparing — Wash and cut in half. Remove core of cabbage. Wash and trim root vegetables. Wash snap beans thoroughly, then scald for 5 minutes in boiling water or live steam and cool quickly. Cut off the ends and cut the beans into short lengths.

Salting — Cabbage, lettuce, turnips or rutabagas: Shred with sharp knife — pack in crocks, kegs, or wooden pails. Distribute the salt evenly over the vegetables while filling, allowing 1/4 lb. (4 oz.) of salt for each 10 lbs. of cabbage. Pack firmly so that brine forms.

Snap beans (scalded): Use 1/2 lb. (8 oz.) salt to 10 lbs. of beans and distribute evenly while packing firmly. Add 8 oz. vinegar (15 tablespoons) for each 10 lbs. of vegetables or 1-1/2 tablespoons vinegar for each pound and distribute evenly with the salt.

After the salt and vegetable has been mixed and packed firmly in a large container wash a few large green cabbage leaves and place over the mixture. This can then be weighted down with a fitted piece of wood held in place by clean stones.

Water drawn from the vegetables by the salt will form a brine that will rise above this cover. If the brine is low in a container, add a brine made by dissolving 1 tablespoon of salt in a quart of water for the cabbage, lettuce, turnips, and rutabagas; and a heavier brine (2 tablespoons salt to 1 quart water) for the snap beans. The brine should cover the vegetables at all times. If cheese cloth is available it may be used instead of the cabbage leaves. It will serve to lift the scum off easily when it appears. Keep the packed containers at a temperature of about 70 degrees F, if possible. An acid fermentation will start soon after the material is salted and continue for about 2 weeks. If the brine runs low add more, otherwise all exposed material will spoil. When bubbling stops it is likely that the fermentation is over. A white scum, which appears on the brine surface, should be removed every day or so. If it is allowed to remain and grow, it will not only use up the acid produced but will give off an odor, and may spoil the food. To remove this scum take off the weights and the cabbage leaves carefully, being careful to avoid mixing the scum with the brine. (It is for this reason that the cheese cloth is convenient.) Wash the leaves or cloth and weights and replace them, being sure the brine covers the vegetables.

Insects may be discouraged from alighting on the salt-vegetable mixture by covering the crock with two layers of cloth over which lime has been sprinkled. After a fermentation period of about 10 days, repack the fermented vegetables and place them in smaller containers that can be sealed. These then are sealed and heat processed in a boiling water bath — 25 minutes for pints and 30 minutes for quarts. If it is not possible to heat-process the krauted vegetables, keep the crock in a place that is as cool as possible, and remove any scum that forms. In cool climates the krauted mixture may keep many months. In other areas food thus preserved will need to be eaten in a shorter period of time than would be necessary if a heat process had been used.

Method 2. For Heavier Dry Salting —

This method uses large amounts of salt — up to 1 part of salt to five parts of vegetable. It is suitable for corn, peas, shelled lima beans, celery, and cut okra.

Preparing vegetables — Select fresh tender produce of high quality. Boil corn 10 minutes to set the milk, then cut from cob, but not too close. Shell lima beans and peas. Wash celery and okra, cut crosswise in short lengths. For best results, peas, lima beans, and celery should be scalded in boiling water for 5 minutes.

Salting — Pack into container, mixing evenly 1 lb. salt with each 5 lbs. of vegetable. Top with leaves, or cloth and weights as for Method No. 1. For better products, salted vegetables can be repacked (after fermentation) in smaller containers which can be sealed. Fermentation may continue for 1 month. Processing in hot water is not necessary in this method.

Method 3. Weak Brine Plus Vinegar —

This method of preservation is suitable for beets, carrots, cauliflower (cut) — snap beans, rutabaga (sliced), turnips, beet tops, kale, mustard greens, and turnip greens.

Preparing the vegetables — Select tender, good quality vegetables. Prepare as for table use by trimming and cleaning. Wash greens several times to remove grit. Snap beans, when thoroughly clean, may be left whole or cut in pieces. These are to be scalded in boiling water for 5 minutes and cooled. Wash carrots and beets but do not slice. Cut cauliflower into pieces.

Brining — Pack firmly in clean containers. Place cover over vegetables as in Method 1. Pour over this a brine, made by dissolving 3/4 cup salt in 1 gallon of water to which 1 cup vinegar has been added. This amount would cover 2 gallons of vegetables. Pour the brine until it comes up over the weighted cover. Store in a cool place and remove scum when it appears.

After fermentation period of about 10 days, repack if possible into smaller containers and heat process in boiling water. If it is not possible to process, keep in a cool place and remove suspected spoilage on top as it appears.

Method 4. With Strong Brine —

Vegetables suited for this method include peas in pod, cauliflower (whole), lima beans in pods, peppers, onions, and okra (whole).

Preparing the vegetables — Select fresh tender vegetables and wash carefully. Do not use over-mature vegetables. Remove dry skin and core from onions. Cut off and discard stalk and outer leaves of cauliflower, halve and remove core.

Brining — Pack firmly in container — Cover as for previous brining processes. Prepare strong brine by dissolving 1-1/2 lbs. of salt in 1 gallon of water to which 1 cup of vinegar has been added.

Pour brine over vegetables until it comes to 2 or 3 inches above weighted cover. To maintain brine, extra salt must be placed on the cover; otherwise, the brine will become diluted as the juice is extracted from the vegetables. For every 10 lbs. of vegetables packed and brined, weigh out 2 lbs. of salt. Place on the cover, under surface of the brine, and let dissolve gradually. Store in cool place, and keep brine level above the cover with weights. Add more brine when necessary. Keep free from insects and scum. Fermentation may last several weeks. After it has stopped repack vegetables in containers with tight fitting tops (other than zinc). Before repacking lima beans or peas, remove pods. Pack firmly and fill to top with brine from the original container. If not enough, add brine. Tighten tops, rubber rings or rubberized types of seals are not necessary. Caps lined with waxed cardboard will do. It is not necessary to heat jars in water bath.

How Salted or Brined Vegetables May Be Used. Vegetables using Method 1 and 3 need not be soaked to remove brine but if flavor is too tart they may be rinsed with water. Vegetables preserved by Methods 2 and 4 may need to be soaked over night, using one gallon of water to a pound of vegetables before they are cooked and served. Long soaking reduces food value. However, if heavily brined foods are mixed with unsalted foods such as meat, potatoes, carrots, turnips, onions or tomatoes to make a stew or soup, the salt content may not be objectionable.

Preservation of Meat

The preservation of meat is difficult in many countries. Families often butcher animals in preparation for fiesta, carnival or other feast days. This is eaten, often too much, too quickly, and year round needs for meat are not met.

In most areas, for many generations, rural families have preserved meat by some form of drying or brining. It will be your responsibility to help families learn how to keep meats for 2 to 3 month periods. Study the methods used in the area.

What is the time of year they usually butcher? Have they dried some of the meats? Are they salted, or brined, or smoked? Maybe they smoke rounds of sausages? Do their methods seem acceptable?

When you have had answers to some of these questions, you may be able to pass on to others some of the best methods you have observed or tested.

III. Canning*

A number of problems are to be met before canning is a possibility in many countries. One of the first problems will be to find containers.

The country where you work may not have either glass or tin containers suitable for canning.

Some countries have glass jars but not of a kind that will withstand high temperatures. In other countries the cost of glass jars and tin cans will prevent their use for canning.

Wine bottles which are available in most countries and are within the means of most families may be used for canning. Caps for such bottles must be purchased and a mechanical capping machine is necessary. This machine might be something that could be owned in common by families in the village.

Lemon juice, so much desired in Greece for use with green foods, is preserved there in small bottles. The small quantity thus bottled does not become rancid before it can be used. Other citrus juices may be similarly bottled as well as the juices of tomato, grape and other fruits.

Method for Canning Fruit Juices Using Wine Bottles

Grapes, Berries, Cherries — Select ripe, firm fruits; wash and remove pits (if the fruit has any). Heat to a simmering temperature and strain through cheese cloth or other thinly woven cloth. Add sugar if desired — one cup to one gallon of juice. Mild flavored honey may substitute for sugar. Wash wine bottles in hot soapy water and rinse well. Heat the washed bottles and lids in clean water before filling with hot juice. Fill the wine bottle with hot juice to within one inch of the top and place cap on, but do not seal. Process in a hot water (boiling) bath for 5 minutes. Complete seals with mechanical sealer. Cool and store in dark place. Fruit purees are prepared similarly, except that they are strained through a strainer or food mill. Heat fruit purees to a simmering temperature, adding sugar to taste. Fill bottles with the hot puree and process in boiling water bath for 10 minutes. Seal with cap and store.

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*Adapted from Home and Garden Bulletin No. 8, U. S. Department of Agriculture, Washington, D. C.

Canning Citrus Juices — Extract juice. Heat to a simmering temperature. Pour into hot, sterile bottles. Process in boiling water bath — pint bottles, 10 minutes; quart bottles, 10 minutes, seal, store.

Canning Tomato Juice — Use ripe, juicy tomatoes. Wash, remove stem ends, cut into pieces, simmer until softened, stirring often. Put through a strainer. Add one teaspoon salt to each quart of juice. Reheat at once to boiling. Fill sterilized bottles with boiling hot juice. Place caps but do not seal. Process in boiling water bath — pint bottles 10 minutes; quart bottles 10 minutes. Remove from water bath and seal.

Use of Water Bath Canner

Any big metal container will do for a boiling water bath canner if it is deep enough to have an inch or two of water over the tops of the bottles and a little extra space for boiling . . . and if it has a cover . . . and a rack to keep the bottles from touching bottom.

The rack may be wire or wood. Partitions in the rack keep bottles from touching one another or falling against the side of the canner.

Looking to the Future of Canning

As you think about improvements in canning you may want to talk with skilled local glass craftsmen. Will the introduction of more machinery eventually make possible cheaper glass? With the elimination of hand glass blowing methods, will the glass stand the high heats necessary for canning? Is local sand suitable for making glass that will withstand high temperatures?

As more modern equipment is added to tin factories will the cost of tin cans for home canning bring them within reach of most people? Could community effort then be mobilized so that community canning equipment could be available? In some countries canning may not be feasible for many years. In others it may be a skill that can be taught now.

The possibilities of sealing wax or its equivalent for sealing some foods may be worth your investigation. Maybe there are crocks made locally that, with the use of sealing wax, could be used for storing air-tight such foods as have a high sugar content or salt content. Talk such problems over with craftsmen who make crocks and others who know about problems in food preservation.

IV. Storing Vegetables for Winter Use*

Many farmers in every country have good ways to store vegetables. Some of their methods may be ones you will want to study and recommend to others.

The suggestions given here for storing vegetables are somewhat general in nature and based on climatic conditions different from what you will find. They may be useful, however, as a point of departure as you talk with the country's agriculturalists about the subject.

It is a good plan to plant some vegetables like tomatoes late in the season so that they may be picked before frost. Picked when white or turning red, they will ripen in the house. For longer periods of storage they may be picked and packed in a box of sawdust, when desired, the box is opened and the tomatoes placed in a warm room to ripen.

All kinds of dry beans may be kept for winter use by picking the pods as soon as they are mature and spreading them in a warm, dry place until dry. The beans are then shelled and stored in bags, and hung in a cool, dry, ventilated place until needed. Cellars are too damp for this storage. A few drops of carbon bisulphide in each container will make control of weevils more certain. This chemical must be kept away from fire, but will not affect the flavor of the beans or their germination. Dry lima beans, soy beans and peas may be treated like dry beans and stored in the same manner.

It is thrifty to dry enough beans and peas to last until fresh ones are in season again. Many root crops can be preserved for periods when they cannot be grown. Successful storage of most fruits and vegetables is not difficult, if the following facts are known:

- Different vegetables and fruits require different storage conditions.
- Any products showing decay or injury should not be stored.

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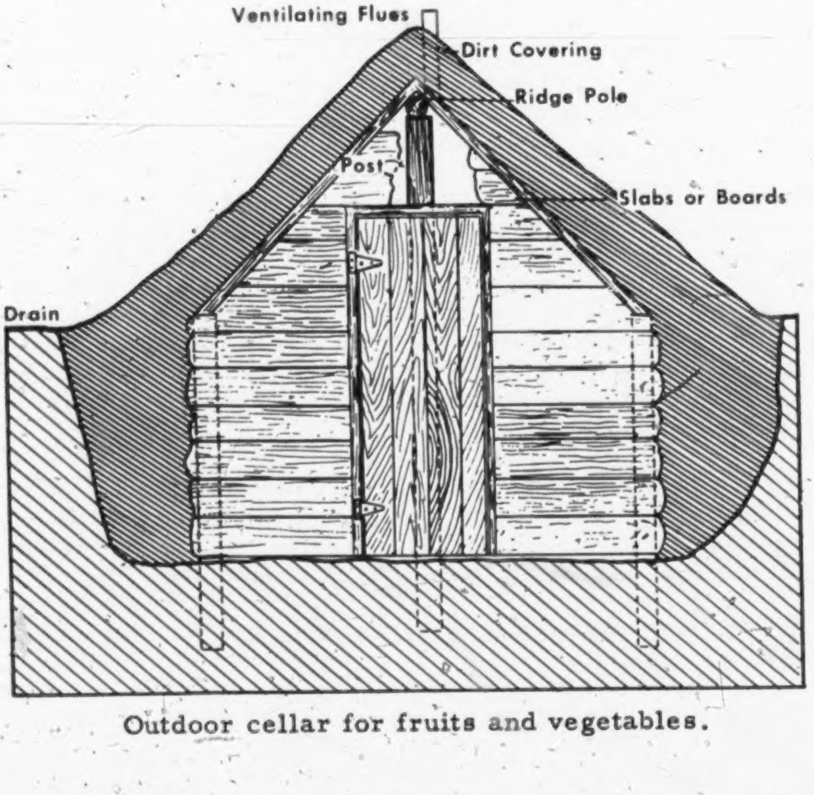
*Adapted from "Home Storage of Vegatables and Fruit", Farmers Bulletin No. 1939 -- U. S. Department of Agriculture, Washington, D. C.

- Vegetables and fruits dry out unless storage place is kept damp; and temperature kept as low as possible without freezing.

- Ventilation is needed not only to change air to carry off odors but also to help maintain a desirable temperature and humidity. Windows or ventilators should be kept open nights.

- Walls and ceiling should be insulated to prevent moisture from condensing and dropping on stored products.

A post and plank outdoor storage cellar is suitable for storing many vegetables and fruits. If both fruits and vegetables are to be stored, there should be two separate compartments for them. A simple cellar of this type is illustrated below.



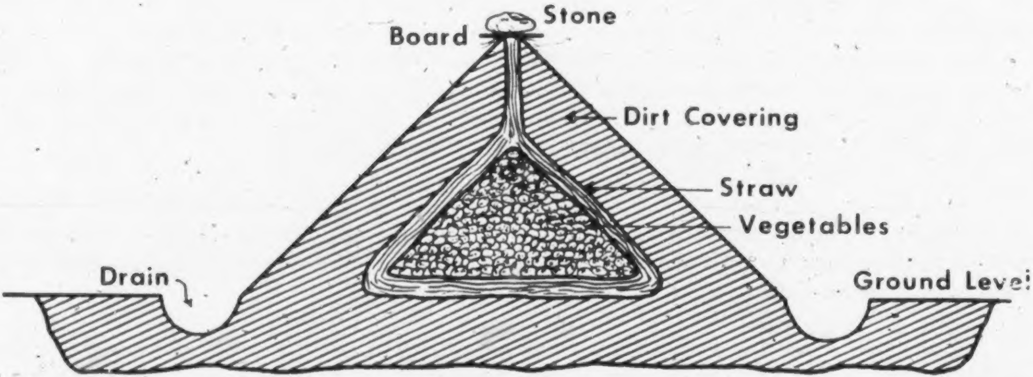
Outdoor cellar for fruits and vegetables.

The excavation for this type of cellar should be approximately the size of the finished structure. The excavated soil should be piled nearby and used for covering the roof and banking the sides. The first step in constructing the frame is to set 2 rows of posts of uniform height in the bottom of the pit near the side walls and a middle row of posts about 5 feet higher than the outside posts. The center row supports a ridge pole, and plates are laid on the two outside rows. A roof of planks or puncheons can then be put in place. After the ends are closed, the whole structure except the door is covered with soil, the thickness of the covering depending upon the climate.

This type of storage cellar is low in cost, but is short-lived, as conditions in the cellar are favorable for wood decay. Creosoting the wood might lessen decay.

Cone-shaped outdoor pits are often used for potatoes, carrots, beets, turnips, salsify, parsnips and cabbage. It is sometimes used for winter apples and peas. The conical pit may be built on the surface of the ground or in an excavation 6 to 8 inches deep in a well drained location. The construction of the pit shown below is as follows:

> A layer of straw, leaves or other similar material is spread on the ground and the produce stacked on the litter in a conical pile. More litter is used to cover the produce and the entire pile is covered with 2 to 3 inches of soil, firmly packed with the back of a shovel to make it water proof. More soil may be needed as winter approaches. A shallow drainage ditch should be dug around the pit to carry away water.



Outdoor storage pit.

HORT—50367

The amount of ventilation necessary will depend on the size of the pit. Where small pits contain only a few bushels of vegetables the latter will get enough air if the straw between the vegetable and the soil is allowed to extend through the soil at the top of the pile. This should be covered with a board or piece of sheet metal held in place by a stone to protect the produce from rain. In larger pits air can be obtained by placing 2 or 3 pieces of rough board or stakes up through the center of the pile of vegetables so that a flue is formed. This is capped by a trough formed by 2 pieces of board nailed together at right angles.

It is difficult to get vegetables out of this type of pit in cold weather and when the pit is opened it is desirable to remove all the contents at once. For these reasons it is advisable to build several small pits rather than one large one and to place a small quantity of several kinds of vegetables in the same pit, then you have to open only one pit to get a supply of all kinds. Each crop may be separated from the other with straw or leaves.

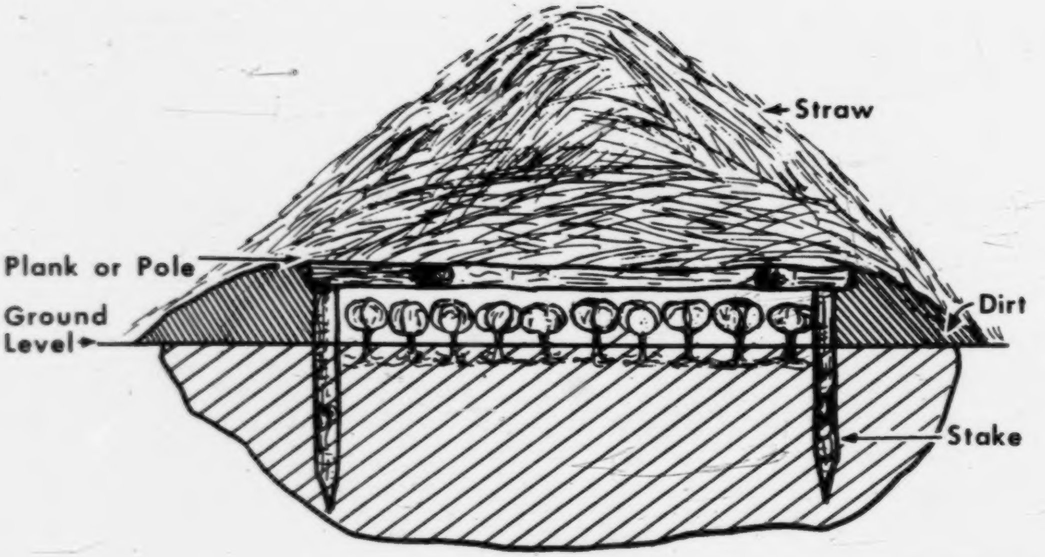
Another type of pit consists simply of an open barrel covered with successive layers of straw and earth. Pits should be made in a different place every year to avoid decay from contaminated material remaining in an old pit.

Root crops such as beets, carrots, celery, kohlrabi, salsify turnips, winter radish and horse radish are not stored until late. When the soil is dry the roots are pulled and topped. Conical pits make excellent storage for root crops. Turnips may be left in the garden until later than most crops but are hurt by alternate freezing and thawing. Parsnips may be left in the ground until needed since freezing does not injure them. But it is wise to store a few in conical pits for use when the ground is frozen.

A good way to store cabbage, collards and other like greens is in a pit made of stakes and poles covered with straw. Enough 8 to 10 feet trenches are dug to hold the number of cabbages to be stored. A frame is built around this bed after the trenches have been filled with the produce and earth packed around its roots. The frame should be about 3 feet high. Soil is banked around the frame and poles placed across the top to hold the covering of straw, hay or corn fodder.

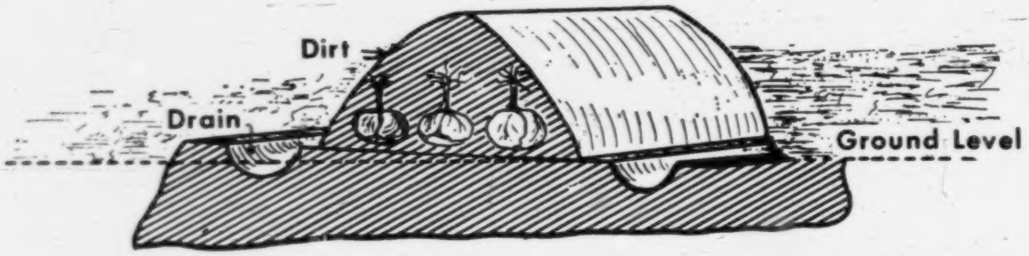
Heads are removed by cutting off with a knife -- leaving the roots in position. The roots will sprout in the spring and supply the family with an abundance of greens. This type of storage costs little or nothing and gives good results.

Cabbage may be stored in a long pit. It must be well drained. The soil covering for cabbage does not have to be as thick as that of vegetables more easily hurt by frost. Cabbages are placed upside down in this and covered with soil.


Straw
Plank or Pole
Dirt
Ground Level
Stake

HORT—50369

Cabbage storage pit.


Dirt
Drain
Ground Level

HORT—50368

Cabbage storage above ground.

Sweet potatoes may be stored in pits or outdoor storage cellars but a loss from decay may be expected. Stored in pits, they may be handled in the same way as for other root crops. A warm moderately dry place is preferable for storing sweet potatoes. A small supply may be placed near a chimney in a ceiling or other place where the temperature can be kept about 55 to 60 degrees.

Late maturing kinds of pumpkins and squashes may be kept in rows until late winter, on shelves if a temperature of 50° to 60° Fahrenheit is maintained.

MANAGEMENT
IN
THE
HOME

MANAGEMENT IN THE HOME

The principle of a sound extension program is based on the faith that rural people have within themselves, resources to solve most of their problems.

Many families can have a better living without added income if they use the resources they have to better advantage. Time and energy are two important resources. When homemakers increase their knowledge and improve their skills in doing any job, they are making better use of their resources.

When we speak of better living, we do not mean necessarily a prettier home or a more modern kitchen. Home management does not mean a job done for efficiency itself. Good management of a home should bring about family good.

For instance, if through good management the family saves some resource, perhaps money, it will be used eventually to bring some happiness into the home, not possible otherwise. Or it may be used for some emergency.

A good living can mean that the home is a safe and clean place, where the family is protected and made strong. In good living, there is some beauty in a house and its surroundings. There is beauty in cleanliness, kindliness, in peace and rest, in many simple things.

As a home economist, mindful of problems in home management, some of the resources of the families you will know seems pitifully meager for the job ahead. You may find homes in which there are no kitchens, only places in which food is cooked. You may see kitchens in which all cooking is done on a dirt floor, on which chickens and other animals run at will; you may find kitchens windowless, and lighted only by a fire that burns under a cooking pot. You may see the family food stored under unsanitary and vermin infested conditions; and you may see the homemaker wash the family's clothes in ponds, in creeks, and in rivers without benefit of soap. How then can you teach home management under such conditions?

It's a challenge that is greater than the challenge for home economists in areas of high standards of living. But the rewards, in terms of satisfaction in helping people, may also be greater.

Beginning Small

Many of the major problems in home management may not be solved until smaller ones are attacked. Little things that are successful, when passed on to someone who can make the same thing successful -- have a snow-balling effect.

"Dishwashing is a good place to start," a home economist from Nepal said. So she taught rural women to use ashes instead of dirt to wash their dishes. Ashes were a far cry from soap and powder but they had one advantage -- they were available and sterile. Certainly they were an acceptable substitute for contaminated earth.

Could the village agent start with a single shelf in the kitchen? If the homemaker finds this useful to store her pots and pans, she will add others.

Starting "small" may be important. When a homemaker finds satisfaction in doing one thing well, largely by her own self help, she can be helped to go on to larger problems.

How Work May Be Planned

Planning is basic to good management. It is a managerial function that sets up a way and time to do a job.

Home agents can help homemakers be better managers of their time and their labor through planning. Every day a homemaker in any country must decide which of two or more things she must do; how she will do them, what materials and equipment she will need; and who will help her do them. She learns to manage by making all these decisions. She can be helped to make them by knowing all the resources she has at hand to do the job.

Resources that all homemakers have in common in all countries are time, energy and some possession, such as money, land or equipment. A homemaker must decide which of such resources is to be given over to any one job. All of them are interchangeable. Time and energy can save money in doing a job; and energy and money can save time in doing a job. It is also true that money and time can save energy in doing a job.

Home management has sometimes been called getting what we want with what we have. A homemaker, for example, makes plans for a home garden that will provide food for her family in the months that a garden will grow. Then she and her family decide the things that must be done to grow the kind of garden they want; the kind of seeds and fertilizers they will need; how the family will work the garden; and which members of the family will do the work. So the family learns to manage by making decisions.

How can the homemaker be helped to plan? She can be taught to do the following: (a) Think through, perhaps list all the jobs she must do during a day in the home and in the fields. (b) After she has thought through all the jobs which must be done, family members can be asked to cooperate in getting the work done. (c) The next step in the homemaker's planning will be to fit the jobs together so that it will take a minimum of time and labor to do them. If, for example, she takes to her pigs peelings from foods she is preparing, she can stop by her garden and gather vegetables she will need that day.

All these 3 steps in planning are fundamental. They enable a homemaker to establish a pattern of work that will save both her time and energy.

Homemaker's Ideas for Economy

Homemakers in every country have ideas on economy. Some of these have come down from mother to daughter over the years, results of the experience of thoughtful housewives.

Some of these ideas may need testing before you can pass them on. But most of them are probably valuable in saving time or money or effort.

Why not start your own collection of these? It could be a course of pleasure and help in your work to get all homemakers to be economy minded.

Maybe the homemakers will start their own file of helpful hints. Certainly they will be glad to give you or the home agent theirs — particularly when you credit them with the idea.

Economy Suggestions

Save wood ashes you collect daily from fireplaces and use for cleaning spoons and brassware. Use to wash dishes when soap is not available.

Native potash should be ground into powder and kept in a dry bottle. It can be used with lime juice as a cheap substitute for baking powder.

- Squeezed half limes can be used for cleaning brassware.
- Tin cans may be made into graters, measuring and steaming tins.
- All wooden ware must be put to dry thoroughly before storing. If wet, may mildew.

- Native gourds should be washed inside and out with soap and water. If really dirty, use fine sand.

- Wash and dry knives made of iron quickly and thoroughly to prevent rust. Knives must not be soaked in water lest handles loosen.

- Remove surplus fat on meat, render it down and use for frying or seasoning.

- Remove bones from meat and use bones to make stock for soup.

- Save egg shells and grind into fine powder. Add ash or grated hand soap and use for scouring pans and pots.

- Save orange peelings and palm nut fibers and dry by the fireside or sun. When well dried they are used as firelighters.

Making Time and Energy Count

Some women find pleasure in working in their houses and fields. Others find it drudgery. Sometimes drudgery comes from wasted time and energy. When a homemaker must care for her house, mind the children, prepare the food for her family and work in the fields, she must make every motion count.

The home agent can help her do this in small ways. She can teach her to:

1. Keep her food and pots and pans where they are easily seen.
2. Make pegs on which to hang utensils.
3. Store these where they are to be used first.
4. Sit when it is possible for her to do so. Sitting takes less energy than standing.
5. Not store utensils or supplies so high she will need to stretch to reach them -- or so low she must bend with an effort.
6. Use a long handle for her hoe so she will not have to bend to use it.
7. Raise her stove and tables to a height that is most comfortable.
8. Let her left hand do its share when her right hand is working. This cuts down on the time with some work.
9. Use long smooth motions with her hands rather than short jerky ones.
10. Cut the stems of greens and green beans with a knife rather than breaking them.

With homemaker groups you may find it interesting and fun to go over a check list before the group, and let each woman by raising her hand say whether she thinks she's "good", "fair", or "poor".

The following list adapted from California may be added to and parts omitted that do not apply.

Such a list will start the homemaker thinking. You may be surprised at what she will do on her own, once she analyzes her own efforts.

Check List for a Good Manager

	Check Yourself		
	Good	Fair	Poor
1. Review all the jobs to be done.			
2. Plan a way to do these.			
3. Do important jobs first.			
4. Do some things ahead of the time you need to.			
5. Use the best way for you to wash dishes, iron, clean house, cook, etc.			
6. Use a wide ironing board for large articles.			
7. Have a place for things; keep them there.			
8. Don't get too tired; you work slower when tired.			
9. Do not waste time.			
10. Arrange household equipment for easy work.			

Making Motions Count*

Many homemakers have worked out for themselves ways to make every motion count. As you talk work simplification with the village agent and with the women get them to tell you how they make their work easier and faster.

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*Making Motions Count - Texas Extension Service, College Station, Texas.

They may want to know how other women make their work more efficient. The following list from Texas Extension Service may help.

Let Your Family Help

Let your family help plan work in the home.
Give them a choice in some of the jobs they do.
Let them help to make work simpler.

Avoid Getting Over-Tired

Plan your work to allow short rest periods in the morning and afternoon.
Alternate a heavy job -- then a light job -- during the day -- the week.
Work in a light place.
Don't worry about things you cannot change.
Wear comfortable and safe work clothes.

Save Your Energy

Sit to work when you can.
Do little stooping -- stooping to get something from a bottom shelf takes 11 times as much energy as to get it from a shelf at arms' length. Work surfaces too low or too high bring on fatigue and require more energy than those of correct height.
Avoid re-tracing steps.

Try These Back Savers

Push or pull when possible instead of lifting.
Lift with leg muscles, not back ones.
Divide the load to be lifted when possible.

Basic Equipment for a Kitchen

The preparation of food means much work on the part of the homemaker in every country.

Many women must work in the fields and care for their young children in addition to gathering, preparing, and cooking the food for their families. If the homemaker is to do all this without great strain on herself physically, her kitchen should be equipped as efficiently as possible.

This does not mean that her equipment must be extensive or costly.

An African home economist's recommendation for the average Nigerian kitchen illustrates this principle.

In Nigerian Kitchen*

1. A cooking tripod - or hearth or coal pot for cooking.
2. A set of cooking pots of different sizes. (Clay pots fit better on native fireplaces than saucepans but are porous and absorb oil from food.)
3. One or two clay pots with covers for storing water.
4. Gourds of different sizes -- to be used as cups, mixing bowls and storage jars.
5. Mortars and pestles of strong wood which does not peel off with use.
6. Wooden spoons of different sizes.
7. Grinding stones -- small enough to manage easily but large and heavy enough to do quick grinding.
8. Kitchen knives -- the Common kitchen knife is long, pointed and sharp.
9. Graters -- a useful grater can be made out of a kerosene tin. (Use one long side of a tin and have it firmly held at the sides with wood. Holes are punched evenly in the tin.
10. A square sieve about 4 inches deep held by wooden bands. A Colander sieve may be made by punching holes in a flat sheet of tin and bending it to form a pan.
11. A strong hardwood board (12 x 15 inches) -- valuable for cutting up bones, fish, vegetables.
12. Empty storage tins and bottles -- painted and labelled -- to be used for storage and steaming tins.

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*"Miss Williams Cookery Book," by R. O. Williams, Western Printing Service Ltd., Bristol, England.

13. Native pot stands -- These are usually basins or baskets lined with cardboard or leaves -- useful in keeping clean cupboards, floor or other places where pots must stand.

14. Funnels, lamps, and other small items for the comfort of the housewife.

15. A strong table, a cupboard and stool, a hand wash basin stand, a refuse tin and baskets for storage of tomatoes and other foods.

16. A table of convenient height for the homemaker.

Essential Equipment

A piece of equipment essential in a kitchen in one country is not necessarily so in another. You can help the women in your country make their own list of equipment, based on the jobs they do in their own kitchens. The following needs of any kitchen may help you.

1. You need something on which to cook. (This could vary from a 3-point tripod to a cooking stove.)

2. You need something to cook in. Vessels used will depend on kind of foods cooked, their methods of cooking and family meal patterns.

3. You need a place to store foods. These containers will vary from crockery jugs to wicker baskets depending on the types of food and how they should be stored.

4. You will need a place to store equipment for use in serving and preparing meals. This could vary from a shelf with built-in storage to woven baskets hung on a wall.

5. You need a container to prepare food in. A wooden bowl, or dish pan, or crock.

6. You need a surface on which to work. This could be a shelf carved out of the dirt wall or a table.

7. You need a vessel in which to wash utensils. This could be a dish pan, wooden bowl, or crock.

8. You need a container for the kind of soap homemakers use. This could vary from a soap dish of aluminum or steel to a tin can to hold ashes used as soap.

9. You need a place to sit while you do some of your work. This may be a keg, a fruit box, a stool, or a sawed-off length of wood.

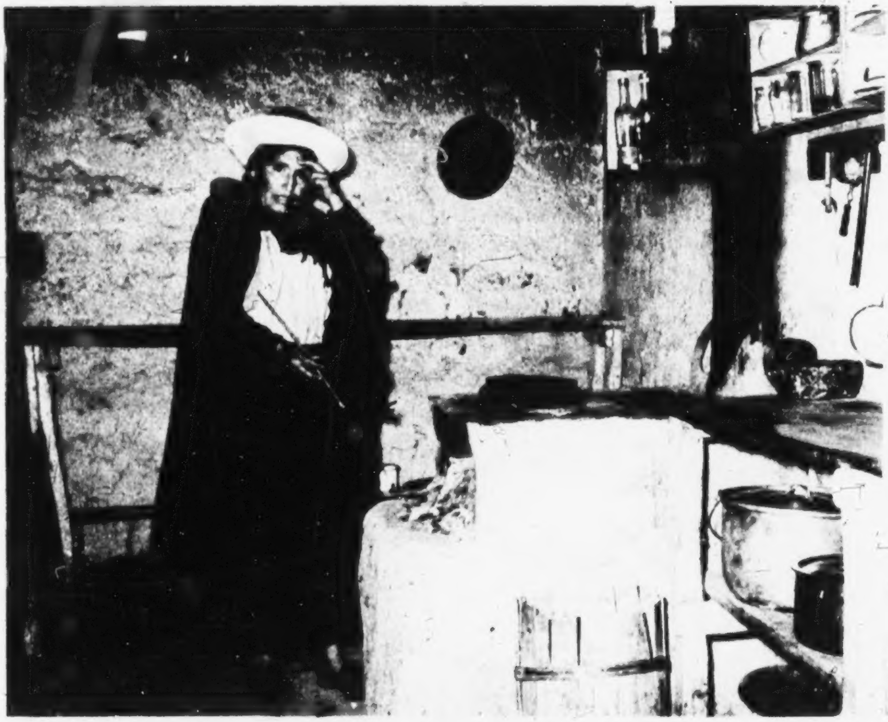
Most homemakers with initiative and energy can have good equipment in their kitchens.

The quality of this may vary, but basically a wooden bowl will serve the same needs as a stainless steel one and a crock of a homemaker's own making can store her grain as well as an aluminum canister can store another's cereals.

Improving Equipment Already in Use

As the women have talked about their needs in equipment they will have been learning from the home agent and each other about improving the equipment they already have. Could a wooden bowl have a hook with which it might be hung, or a hole so that it might be hooked over a nail in the wall?

Before -- an Indian woman in Peru uses her old stove to prepare meals for her family.



After -- the same Peruvian woman stands as she works at her improved stove. Note the simple shelves and the improved equipment.

Could there be half shelves on which small articles like coffee cups made from coconut hulls, could be set? Could shelves be made from bamboo and fastened with leather thongs if they couldn't be nailed? Could there be many cups for drinking so every one could have his own? Could a nail keg be covered and used for a kitchen stool?

As they talk the women express opinions. Sometimes they commit themselves to carry out what they've said.

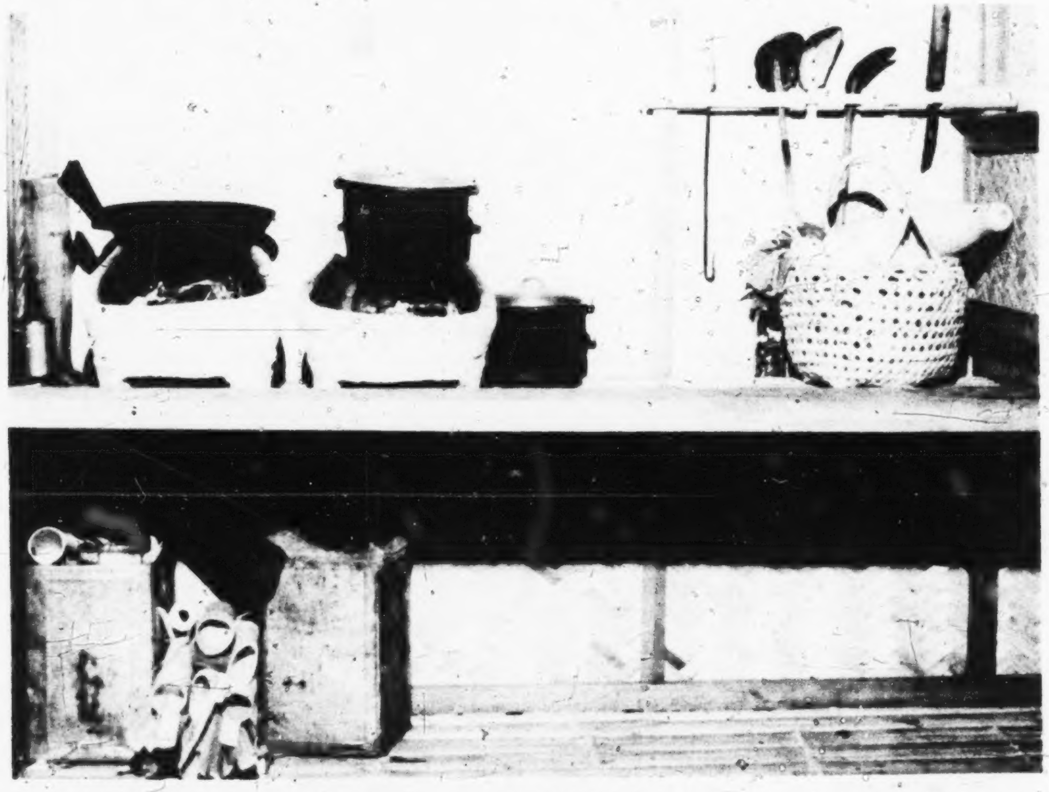
COMMITMENT IS IMPORTANT IF PEOPLE ARE TO DO WHAT THEY'VE LEARNED.

Women alone cannot solve some of their problems. Suggest: "Why don't you take that problem home to your husband?" "Could your husband build a shelf of dirt, or bamboo, or plank?" "Maybe your husband could show this group how he built your homemade sink?" "It's up to you to help interest the husband if you can."

Perhaps the problem can be solved by the groups working together. As a group they could be shown how to saw and nail together pieces of wood from wooden crates for shelves. Or they could weave reeds and vines together to form a shelf.

In any case you and their home agent will help them consider what needs to be stored, the space and materials available for storage, and the most convenient and cleanest place for storage.

The heights of all working surfaces is a decision each homemaker will work out for herself, with the village agent's guidance. The problem is not a simple one. Homemakers, used to stooping over in their work, do not always see a necessity for change; present stoves and equipment in the kitchen may not be adaptable to raising; safety hazards may increase as the stove's position is changed.



Home demonstration agents in the Philippines have set up their efficient charcoal stoves in their demonstration kitchens.

Little research has been done in most countries on which to base recommendations for comfortable working surfaces. All these problems must be considered in your teaching.

Comfort, and the homemaker's judgment of what it means to her, seems at the moment to be the best guide to any educational work on proper working heights. The ages of the homemaker and the kinds of equipment she has in her kitchen will be other factors to note.

Some psychological hurdles might be met successfully if you begin by showing what can be done in the poorest home in the village, but only if that homemaker has shown an interest in improving her kitchen or has asked for help with it.

Where a stove does not have a sturdy concrete or other masonry base, the village agent will help the family consider, and perhaps construct, a rammed earth shelf or table on which the stove can be firmly and safely anchored.

In contrast, you may decide it is more effective to begin an improvement in one of the better homes of a village hoping that the prestige of the owner will be such that other women, seeing her improvement, will want to change their own kitchens.

In either case, try to begin with what the individual wants or has shown some interest in. A way to arouse interest in good working heights is to demonstrate with stick figures the movements of the body in raising or lowering heights with the arms. This could be done with a blackboard or with posters.

As you explain efficient working heights, let the women take part in your demonstration, each doing the same movements you make, each deciding for herself what position seems most natural and easy. Agents will do the same when they teach this to homemakers.

Discussion of useful heights for shelves might be approached similarly. Articles for storage should not be placed so high that extra physical labor is involved in reaching them. Nor should they be so low that you have to stoop to locate something.

SEARCH FOR A SOLUTION TO THIS AND OTHER PROBLEMS THROUGH THE EYES OF THE PEOPLE.

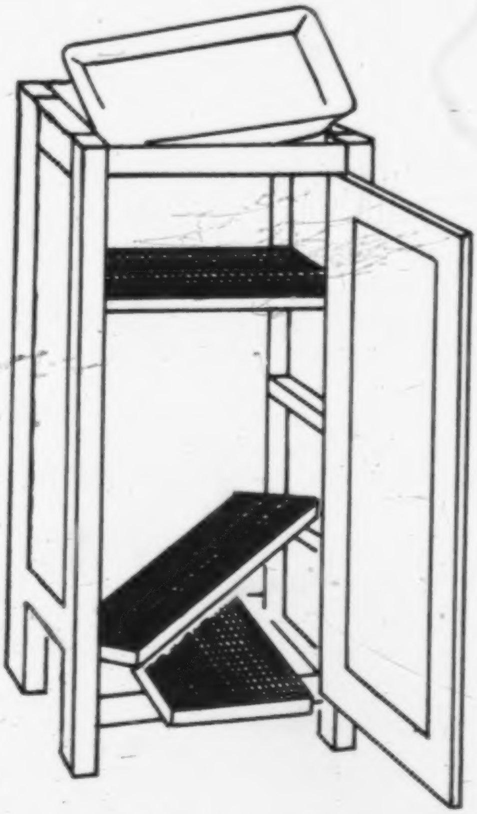
Making an Iceless Refrigerator

A useful convenience for the home, an iceless refrigerator, is based on the principle of cooling by evaporation. This will keep meats, fruits, and vegetables cool and extend the period for keeping milk and butter.

It also keeps insects away from food. Food cooked once for the whole day cannot remain fresh and wholesome in a warm climate. An iceless refrigerator helps keep such food fresher a longer period.

An iceless refrigerator costs very little to build and there is no cost to operate it. You may find the following instructions useful in building one.

First Stages in Building An Iceless Refrigerator



Framework of iceless refrigerator.

Construction –

Make a wooden frame (maximum dimensions 56 x 12 x 14 inches) and cover with screen wire or hardward cloth, preferable the kind that won't rust. If such wire is not available, woven grasses or branches might be used. A door should be made for one side and mounted on hinges or leather thongs. It can be fastened with a wooden button or latch. The bottom of the door is fitted solidly but the top should be covered with the wire or other woven mesh.

Adjustable shelves can be made in the base with light wooden frames covered with poultry wire mesh or woven native grass or other plant material.

These shelves rest on side braces at desired intervals.

A pan 4 in. deep or a bucket is placed on top and the frame stands in a larger container of water. All the woodwork, the shelves, and pans should be painted. If this is not possible, it will be helpful to oil wooden parts with linseed or olive oil, and let dry a few days before using.

A cover of canton flannel, burlap, or heavy grade of coarse cloth is made to fit the frame.

The smooth side of the fabric should be on the outside. This cover is buttoned around the top of the frame and down the side on which the door is not hinged, using buggy hooks and eyes or large headed tacks and eyelets; or simply by lacing with cord through worked eyelets.

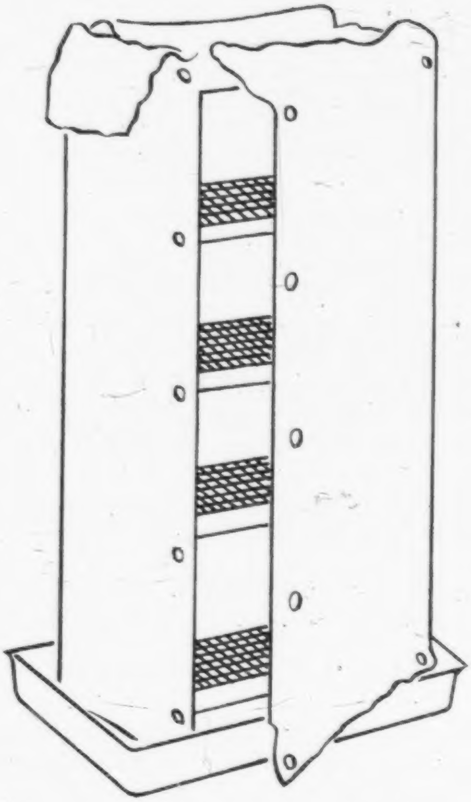
On the front side the hooks (or other fastening) are on the top of the door instead of on the frame and the cover is fastened down the latch side of the door, allowing a wide hem to overlap the door closing.

The bottom of the cover should extend down into the lower pan. Four double strips of cloth 8 to 10 inches in width, are sewed to the upper part of the cover. These strips form wicks that dip over into the upper pan.

Operation of the Iceless Refrigerator —

The operation of this refrigerator is simple. The upper pan is kept filled with water. The water is drawn through the wicks and saturates the cover. Capillary action starts more quickly when the cover is dampened by dipping in water or throwing water on it. The greater the evaporation, the lower the temperature.

The refrigerator should be regularly cleaned and sunned. It is well to have two covers so that a fresh one can be used each week and the soiled one washed and sunned.



Completed iceless refrigerator.

Food Storage

The storage of food is a major problem in all countries.

Bare essentials in such storage are:

> That the food be easily accessible to use by the homemaker.
>
> That it be protected from mice, rats, flies, roaches, and other insects that might contaminate it.
>
> That it be kept as cool as possible in warm seasons.

Your recommendations on the storage of food will depend on a number of factors: (a) the kind of food to be stored, whether fresh or dry, raw or cooked; (b) the type of storage facilities economically possible, and (c) the ways in which the storage of food are already carried out.

In this connection it may be better for you -- or village workers -- to devise ways for improving what families already do in storing food rather than suggest something entirely new. Storage equipment which villagers have made for themselves such as baskets, crocks, and other containers, however inadequate, are valuable as stepping stones to something better.

Keeping A Kitchen Clean

Keeping a kitchen clean and sanitary is no small problem in any land. As you study the ways in which homemakers clean their kitchens, find something in their practices that they do better than you. Show an interest in finding out how they do it. When you do, you will be forming a link that may help them to want some of your ideas.

You need not exhibit all your ideas on cleanliness at once. If one idea is accepted, there is a good chance that others will be!

Some of the things any homemaker can do to keep her kitchen clean follows. You will know additional ones.

1. Ashes — may be cleaned from the stove each day and saved.
2. Walls and ceiling may be swept down with a homemade ceiling broom (an ordinary broom with a long handle attached).
3. Walls should be washed down or whitewashed occasionally and the fireplace and tripods scrubbed.
4. Sweep the kitchen after each use.
5. Scrub the floor with sand, ashes or soap at least once a week.
6. Wash the windows once or twice a month or when not clear.

The Cooking Stove

Every country has its problems in finding an economical, efficient and convenient way for cooking. A good cooking stove should help any homemaker to prepare better and more healthful meals for her family. At the same time it must be a minimum fire danger.

Before you attempt to show how a new and better stove can be built you will want to give a lot of thought to the methods the women are already using in cooking. Does the homemaker use a tripod on which a clay pot is set? Does she have 3 stones on which she places the pot of her own making? Is there a shelf of dirt on which twigs and leaves are

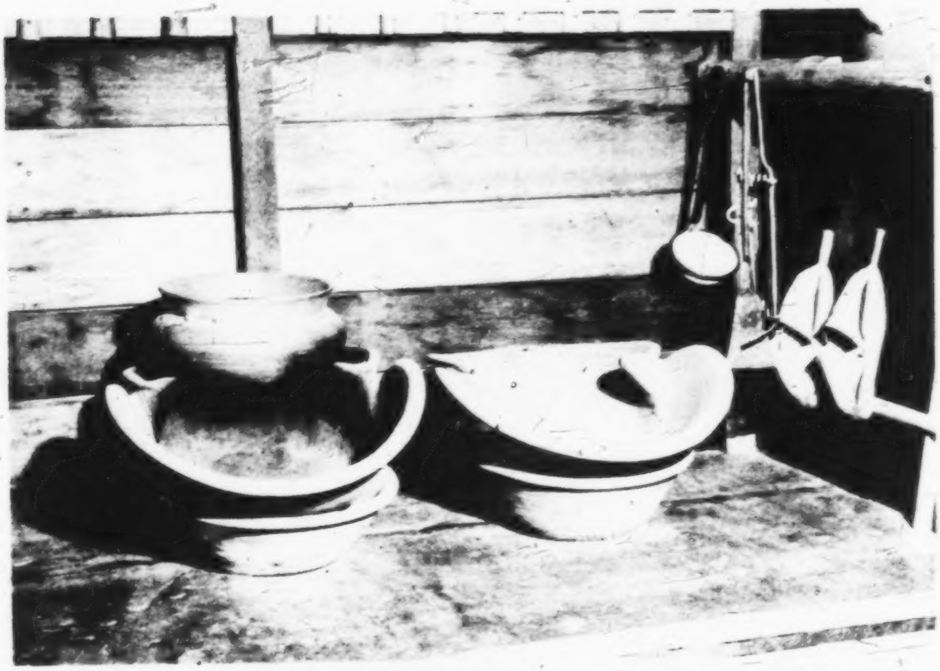
A home agent in Pakistan and her helper demonstrate the use of an improved stove.

burnt and on which a vessel is set? Does she have a stove of bricks or clay or steel? What are the utensils she will use on this stove? What is the source of fuel? Is her present stove one that will make the best use of fuel?

Does she use an oven in the yard to bake bread or does she join with other women of the village to bake in a common oven? Answers to these and other questions will help the home economist in the recommending changes or improvements on stoves.

As you talk with women in the villages about their ways of cooking, find out how each one uses a stove. Is it for cooking foods with liquids? Will it be used for long or short heating periods? Will it be important that little fuel is used? Is it a custom to bake some foods? As you begin to know common food habits and ways of cooking, note some of the differences in the stoves the homemakers use as well as their ways of using them. If tripods are in general use, does one have better features than another? Has some ingenious homemaker or her husband made some improvement others do not have?

In talking with villagers about the stoves they now use, search for the reasons they use this particular type, which may seem to you to have so many shortcomings. Does the homemaker with the chimneyless stove in her house see the smoke as a way to drive insects out of the house?



Type of improved stove in the Philippines. It is locally manufactured from clay, as is also the cooking pot. The lower pot protects the table from heat and the middle pot holds the charcoal.

Fish are hung from the ceiling in some areas to be dried and smoked. The smoke keeps flies and insects away. If the smoke does partly deter insect damage to stored food, you may want to help the homemaker with the control of such insects.

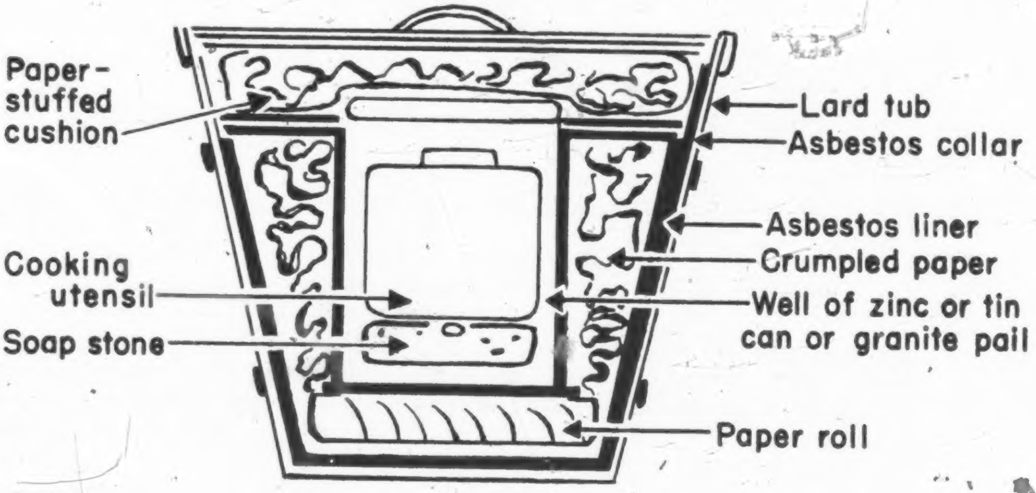
The personal relations you build, particularly as you seek people's help and advice, should be good ones, strong enough to aid you later. In every visit if you are truly searching you will find something that is unique or different or good about the villager's family or his surroundings. Maybe it's the intricate weaving of his fish net, or the ingenious way his wife stores the family's foods, or the clean baby the mother cuddles. All of us hunger for approval. But it must be an honest approval. Everyone is quick to sense any insincerity in praise.

Although a home agent cannot criticize even a stove, that fact does not limit you in teaching about better stoves. In an educational process that involves most members of a family you can suggest improvements the family can make. They may even participate in a community program for encouraging the use of better stoves.

As you visit among the families and talk with village leaders, someone may tell you of a particular stove that is new or different. Perhaps the person can arrange for you to be invited to see the stove, and talk with the owners. Naturally you will find good points about this stove, perhaps in its unique build or in the fact that the villager wanted to make his wife's work easier. Look for the kind of stove best suited to the people who are going to use it and one most economically feasible for the average village family. This will give you a basis for making recommendations.

A Fireless Cooker Can Save Fuel

In some countries where fuel is scarce a fireless cooker can be a real contribution to better foods. Once the villager is helped to understand the principles of the fireless cooker -- heat retention through insulation -- he may come up with a better plan for one than you could give him. In some countries these are built in the ground. In others they are built from surplus tin cans, one fitted into another tin can or box but separated by saw-dust, paper, or other layers of insulation.



Homemade fireless cooker.

Materials To Use For a Homemade Cooker*

1. Outside container. Any of the following: wooden bucket, lard can, lard tub, kerosene can, packing crates, galvanized pail, small barrel or keg.

2. Inside container well. Any of following: an enameled or galvanized pail with tight fitting lid, or large tin can with lid. Whatever the container, it must be large enough to contain a heating stone and the cooking kettle without much vacant space.

3. Cooking utensil — Regular cooking container with a lid.

4. Packing material — A quantity of shredded or crumpled clean newspaper. Excelsior, saw dust, ground cork, mineral wool, straw, wool or cotton batting also may be used.

5. Outside fixtures — 3 or 4 coasters placed on the bottom of the cooker make it easier to move about. Handles on two sides and on lid, and a hinged lid (or one that fits down in container) are recommended.

6. Miscellaneous articles — One sheet asbestos, 1/8 inch thick; 1/2 yard oilcloth to cover collar; 1-1/4 yards muslin or denim for cushion. About fifty clean newspapers.

Making a Fireless Cooker

1. Wash and dry the tub or other containers selected.

2. Make sure hoops, handles or lid for the container are satisfactory.

3. Put coasters on bottom if desired so they may be moved about easily.

4. Line tub with sheet asbestos or heavy building paper.

5. Have ready to place in bottom of outside container a paper roll made as follows: (a) Fold newspaper in strips no wider than the columns of printing; (b) Start forming a coil and with needle and strong cord, overcast one layer with another. Make roll nearly as large as base of tub,

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*Extension circular from Nebraska. Out of print.

6. Cut strip of asbestos as wide as the inside container (or well) is high, minus one inch for lid to cover edge. Fit this asbestos strip to the can and make firm with asbestos cement. Cut circle of asbestos one inch larger than bottom of container.

7. Set asbestos covered can on circle of asbestos which has been placed on top of paper roll.

8. Pack crumpled paper around can on all sides and to within 1-1/2 inches of top, then if building paper is used bring it over crumpled paper to help hold it in place.

9. Cut collar of asbestos or heavy cardboard paper to just fit around can and inside of tub container. This collar may then be covered with oilcloth to make it easier to keep clean.

10. Make cushion or "pillow" for top as follows: (a) First make a pattern; measure inside diameter of tub at top, take cord 1/2 that diameter and make circle on paper the desired size of the cushion. Allow for seam. (b) Cut 2 circles this size from muslin, denim or oilcloth. (c) Cut a strip 3 inches wide and long enough to go around the circle. (d) Sew strip to both circles leaving an opening of 4 inches through which to stuff packing material. (e) Turn case to right side and stuff with insulating material.

11. Make heating stone as follows: Cut circles from cardboard the size of the stone desired (small enough to fit into the cooking well). Fit a 2 inch wide cardboard band or collar around the circle. This should be strong enough to serve as a mold for the cement. Place collar on heavy paper or board. Take equal parts of sand and cement. To make a good sized stone, mix 4 cups sand and 4 cups cement with 1-1/2 cups of water or until a stiff mush is formed. Mix sand and cement then add water. Form the mush into the pasteboard form until half full. Have ready to place into the soft mush some screen wire, chicken netting or long nails to serve as reinforcement. Add the remainder of the mush. Make smooth on top with an indentation in center. Set in this indentation a small eye or hook by which the stone when hot may be lifted. Let this stone stand 48 hours or until hard. Remove the collar, place in cold water and let boil for 30 minutes. Cool slowly. Home agents in Turkey, instead of using an outer container, substituted a hole in the earth instead. They also made the "pillow" of sand.

Using the Fireless Cooker

It is important that the cooking utensils and the well of the cooker be carefully washed and allowed to stand open when not in use, in the sunshine if possible. When not in use, the cooker's lid should be left partly open. The stone should be kept clean and dry.

It is not necessary to use much water when cooking in a fireless cooker, for there is little loss by evaporation.

Most foods should be brought to a boil and cooked for 4 or 5 minutes in the well. Then the lid is placed on this well and it is set on the hot stone in outer container. The cushion (or pillow) is then put over the well and the cover for the outer container is fastened securely.

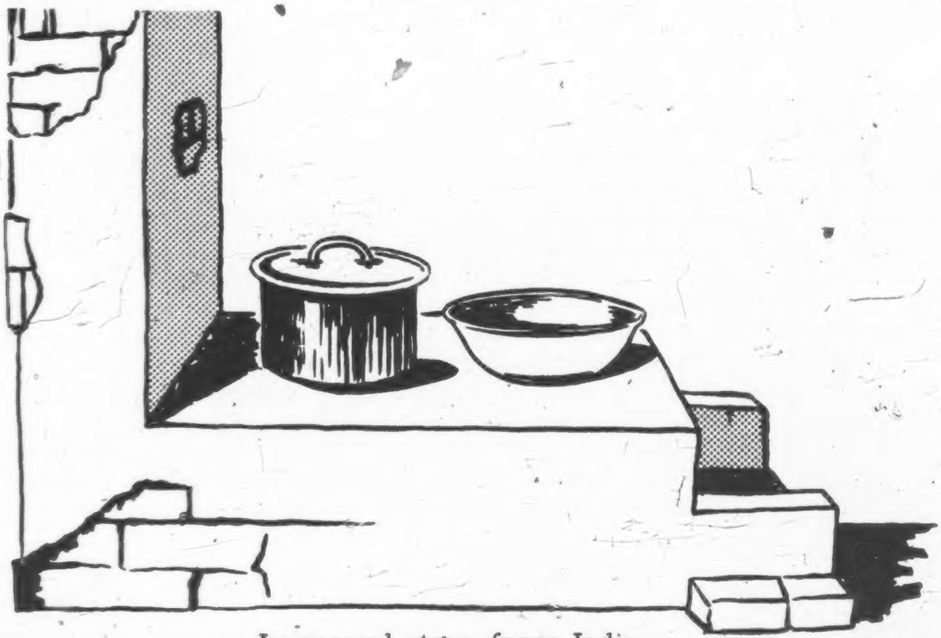
Cereal may be cooked all night. Rice and cracked or whole wheat are especially good prepared in the cooker. Dried fruits are also good. These are washed, then soaked for 1 hour. Allowing 2 parts water for 1 part of dried fruit, place on stove, let boil 5 minutes, then place in cooker for 4 hours.

Beans should be soaked over night, then brought to boil, boiled for five minutes, and then placed in the fireless cooker 4 to 5 hours.

Once she knows the principle of the fireless cooker, the average homemaker will adapt it to her own ways of food preparation.

The Smokeless Stove

A "Smokeless" stove, developed in India but adapted for use in many countries, directs smoke away from the homemaker's eyes; is saving of fuel and can be made of native clays.



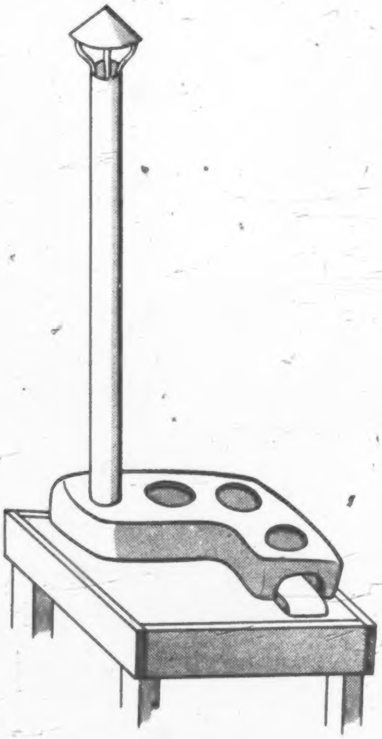
Improved stove from India.

The Hyderabod Engineering Research Laboratories in India have developed the "Hyderabod Smokeless Chula". (Chula is a Hindi word meaning cooking fireplace or stove.) This stove, made with mud or mud products as a basic building material, burns wood, coal or charcoal. The earth may crack in the beginning, but a few applications of fine red clay with cow dung (cow dung is the adhesive) will stiffen it. Cooking hole plates can be made of clay and fired. A village potter can prove useful here.

Seven basic advantages are incorporated in this Chula:

1. It has heat efficiency and saving of fuel;
2. Earth is the basic ingredient in its construction;
3. It is simple in construction (can be cast in a mold as a cottage industry);
4. Its general shape and operation is already known to village women.

If the smokeless chula (or stove) is not made correctly it may not draw well. The fact that the 3 eyes are set at an angle makes it somewhat difficult to build and to draw well.



Improved stove (Panama).

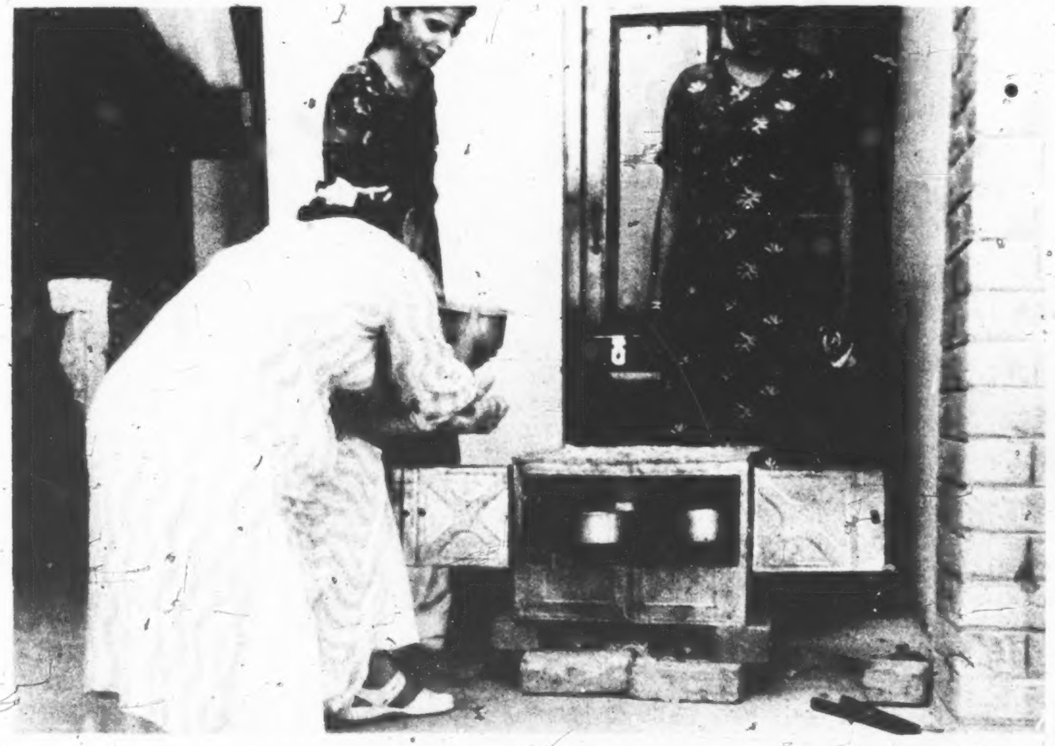
You may want to look into an adaptation of a Panama smokeless stove in which the eyes of the stove are in a straight row, thereby allowing the smoke to draw more easily.

An Improved Oven From a Kerosene Tin

A home economist in Burma has the following suggestion for making an improved oven. "Clean thoroughly a four gallon kerosene tin. Cut off one side of it to form a lid or cover.

Make a few folds in the large portion with a pair of pliers. Put about 2 inches of sand or very fine gravel in the bottom of the improved oven. Place on stones or bricks over a charcoal fire until very hot. (Makes a loud hissing sound on the application of a few drops of water.)

Place the food to be baked or roasted (in its pan) on the hot sand. Put the cover on the tin and then put hot coals on top of the cover. Cook until done."



Home agent trainees in Pakistan demonstrate the use of the oven they have made from two kerosene cans.

In a training center in Pakistan a similar oven has been made by soldering two kerosene tins together, placing them over hot charcoal and putting hot coals on the top.

A Pakistani home economist explains the use of such an oven as follows: "The oven is not standard equipment in the Pakistani kitchen although baking is done in various ways. An oven has several advantages. With slow even heat it does not have to have constant watching as a boiling pot does. If the meal is delayed food can be kept warm and appetizing without the loss of meat and vegetable juices. Larger quantities can be prepared at a single baking with a savings of time and fuel."

The base of a Pakistan oven is the kerosene tin. A hole is cut in the bottom of this. A door is cut out of one side and a shelf is inserted.

The oven sets on a charcoal brazier the diameter of which is approximately the same as that of the hole in the bottom.

With practice the Pakistani cook learns just how many live coals to put on top of the oven to obtain the uniform heat she wants inside. A baffle over the hole helps to spread the heat evenly.

As the idea spread to other areas of the country improvements were made on the original design. Two shelves instead of the original one were inserted and handles were fixed on either side of the door. The door catch was improved. Soon somebody decided that the oven was too small so four tins, standing edge to edge, were soldered together to form an oven that could be set on a platform of hot coals instead of the charcoal brazier. This oven is used and owned by a number of families just like the native bread ovens already in use.

When all the village agents were trained in the making of these ovens, each one made one for her own use and took this with her to the village where she has to work.

It has been successfully used to prepare yeast breads, pies, meat rolls, mongol cakes and other baked products.

The Placing of Stoves

Closely related to the work you do in helping families have better stoves, is the location of the stoves. At first thought most home economists will feel that any stove must be raised off the floor. You will remember, though, that housewives in many areas have always cooked in a squatting position. It's a natural posture to them because they are used to it. Changes in this as in other working habits must be approached slowly.

A home economist in Nepal thought this problem through thoroughly in her plans for training a group of young women village workers.

When their foods training meeting began, an improvised laboratory had a number of smokeless stoves. Some were placed on the floor; some were at other varying heights. The young women were rotated so that they used each of the stoves. At the beginning, all of them preferred those on the floor. At the end of the session they had decided for themselves that the higher placed ones were the ones they'd teach when they went back to their villages.

Making a Plan for a Stove

As you think over types of stoves, you will, of course, be remembering that no country yet has ever come up with a perfect one, to fit every need for cooking or economy. Before you are ready to adopt such plans as the villagers themselves have decided represents a stove you can recommend, you will be asking them and yourself, is this a stove that will be economical of fuel? Does it fit the needs of the families it is being designed for? Has it some features which could be added to the stoves the villagers already have? Will it cook what the families want to cook? Are materials easily available for constructing the stove? Will the cost of such materials be too high? Are there skilled craftsmen in the village who can show how such a stove can be built?

When you have answered these questions satisfactorily you may be ready to get a local draftsman to draw up your plans. Although, once completed, you will still want to go through a period of experimentation observing how such a stove holds up under average usage. You may want to get a village family here and there to try out the stove you have evolved.

The involvement of the people in the planning and carrying out of anything that is to affect them isn't always easy, but it pays off in results, whether it is a program for a new stove or the making of friends for an Extension program. You may have discovered in such an involvement process that you have a principle that will be helpful in all your teaching.

"FIND OUT THE BEST PRACTICES FAMILIES HAVE ALREADY ADOPTED FOR THEMSELVES THEN GET ALL TO DO WHAT SOME HAVE DONE."

Families Play an Important Part in Any Change

A decision to make and install a smokeless, a fireless cooker or any other type of stove affects the whole family and needs to be understood by all family members.

The family is the basic social unit in most villages. Many vital decisions are made by it and it exercises great influence on each of its members. It is a powerful factor in any educational effort to change existing ways of doing things.

A family decision to change may spread along kinship lines and break the ground for change in many other villages. An example of the value of working with a group, in getting acceptance of an improved stove also occurred in India.

Here in each of two families in two villages a single family was persuaded to have the old Chula replaced by a smokeless model. In one of these villages the new stove was the result of working with one housewife. No one outside her family knew much about what was going on.

In the second village many of the neighboring women were drawn into the prior debate as to whether or not to try the new stove. They were then invited to see it being built. In both cases because some details of the stove's design were wrong, it either produced more smoke than the old one or the fire died out.

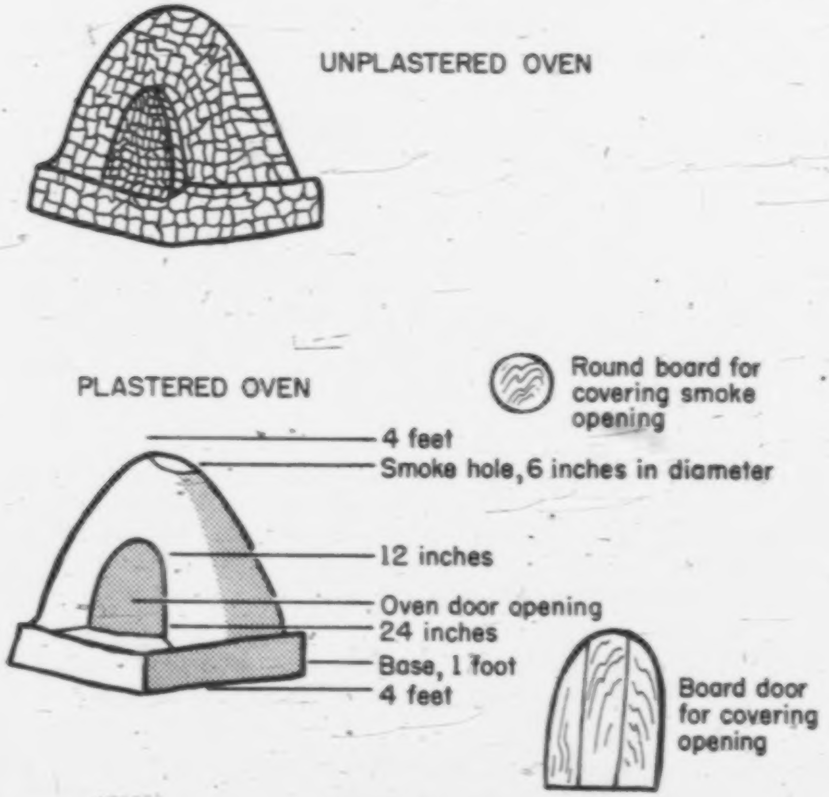
In the first village the hopeful housewife became a laughing stock, and it was 2 years before anyone would try a new model.

In the second village the other women were sympathetic about the failure and they made helpful suggestions, one of which was to substitute the built-in hot water pot of the original design by an open fire hole with a cover plate when not in use.

Within 6 weeks an improved design was installed in the place of the failure and it worked well. Within a few months eight other homes had built the improved stove. It is to be noted that in both cases the first stove to be built needed much persuasion of the family beside the housewife. The women of the second village taught each other how to use the smokeless stoves successfully. The meaning of smokeless stoves becomes greater when they are used in other ways than cooking food.

When smoke or soot are absent the housewife can use a stove for boiling water for washing her family's clothes; on wet days clothes can be hung on lines over the stove without fear of smell, smoke or soot; flat irons for ironing can be heated on the clean iron plate above the cooking holes; ready hot water for cleaning utensils is, of course, an insurance against disease; bathing, too, becomes so much more simple when hot water is readily available.

Making the New Mexico Outdoor Oven*


UNPLASTERED OVEN
PLASTERED OVEN
Round board for covering smoke opening
4 feet
Smoke hole, 6 inches in diameter
12 inches
Oven door opening
24 inches
Base, 1 foot
4 feet
Board door for covering opening

Outdoor oven.

1. Use a wooden mold for making adobe brick leaving top and bottom open. The size of the mold may vary from 16 inches x 12 x 4 inches to 14 inches x 10 x 4 inches. This last is the average size. The frames or molds are usually made in pairs or fours to speed the work.
2. Mix 3 parts soil (which does not have too much clay or sand) with one part sifted sand and some straw. Add water and mix well until thick and smooth but not watery. Fill molds with mud mixture. Remove molds and leave bricks on the ground to dry. Wash the molds occasionally. It takes several days for the bricks to dry depending on the weather. Turn the bricks on edge after a day or two to continue drying.

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*Mimeo leaflet, The New Mexico Outdoor Oven, Fabiola Gilbert, Extension Service, State College, New Mexico.

3. Adobe bricks are laid by same method as bricks, tile, or other building masonry. The same soil used for making adobe bricks is used for mortar, except no straw is used. The mortar for adobe bricks should be 1 inch thick.

   Start by making a base 4 feet square and 1 foot high. When this is completed start laying the bricks stacked the width of the brick around from each end, using the center of the square base as the guide. A front opening 3 feet high which tapers from 24 inches in width is left. To keep the dome shape and an oval opening, the brick corners are chopped off as the building proceeds. The inside space should measure 2-1/2 feet wide by 3 feet high. A round hole about 6 inches in diameter is left at the top for the smoke to escape when fire is built in the oven. A round wood corner is made to fit the smoke hole and one oval shape to cover the front opening after the oven is finished. The inside is plastered with mud mixtures as was used for making the adobe. To preserve the outside it is also plastered. Both the inside and the outside are plastered at least once each year.

Using the Outdoor Oven

A good wood fire is made in the oven leaving the smoke hole and door opening uncovered. When the wood has burned down to ashes sweep out the ashes carefully and put bread in on trays or on the well swept oven floor. Cover the smoke hole and door opening, making care that it is tightly sealed. Rocks put against the door serve to hold down the smoke cover. Bake bread for 1 hour to 1-1/2 hours. Experience will teach the homemaker how long to bake the bread.

Every Country Has Laundry Problems

It is estimated that 9 women in every 10 in the world wash the family's laundry without benefit of machine. Many wash in the stream that runs past their door, or in a stagnant pool or swiftly flowing river or village spring. Some will use the leaves from plants for soap or bluing. Sometimes they rub the clothes with sand, or beat them over rocks to free them from soil.

Regardless of their methods you can help them improve. Perhaps this is the best place to start home economics education.

Some home economists have studied the laundry methods in use by rural women. If the village agent can learn from the homemaker what she dislikes most about washing her family's clothes, it will be helpful. Is it that she must go great distances to find water? Is it the effort she must spend in beating plants to obtain a type of soap? Is it the time this takes from her other work?

For some women there are pleasant aspects about washing clothes. Meeting the other women of the village at the spring or river bank or balsa raft may be the only contacts the homemaker has with her neighbors.

In attempting to help with laundry problems, as with other changes in family living, try not to introduce too many new ideas at once. At the same time, avoid criticizing present practices, especially where there are social values possible through communal washing at village spring or river, if you cannot help families to have better or more valuable experiences to replace them.

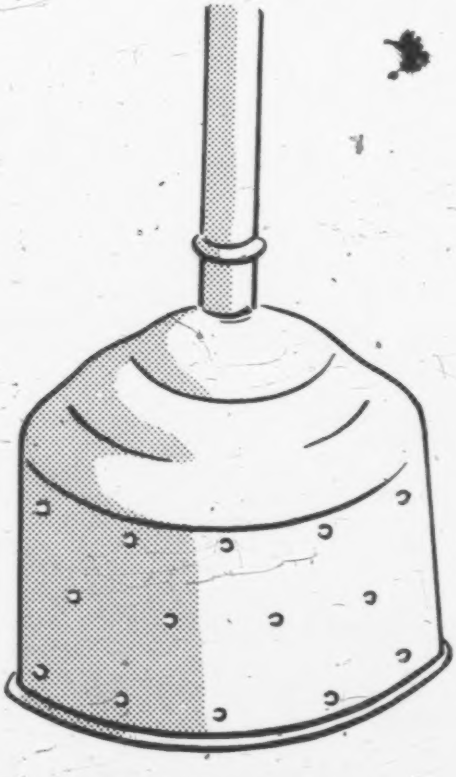
A lad from India uses leaves of a plant to weave a cord for an improved clothesline.

Improved stoves on which fairly large quantities of water may be heated will be an asset in washing. If you recommend such a practice, you will be under obligation to help families observe safety precautions. Children particularly, could be injured through careless handling of water.

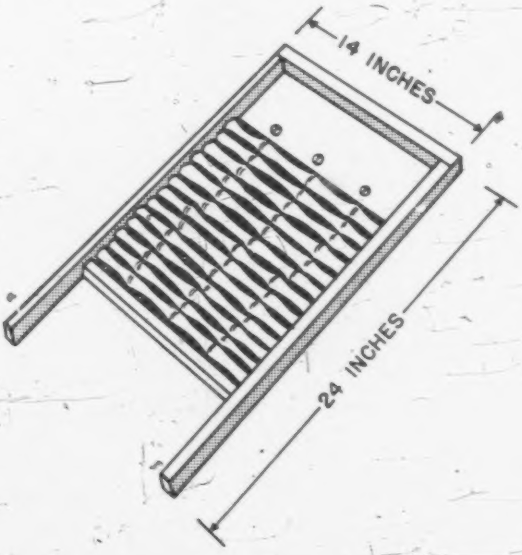
Small Aids May Lead to Changes

Small aids in washing clothes may catch the homemaker's attention and lead her to make more fundamental changes. Most homemakers can see the logic in your reasoning that there is great wear and tear of clothes beaten on rocks . . . Particularly if they are shown a simple rubbing board that makes an acceptable substitute.

In the Philippines, Nepal and many other countries, such a rubbing board is made out of bamboo, split in half and nailed to a board.



Suction type washer.

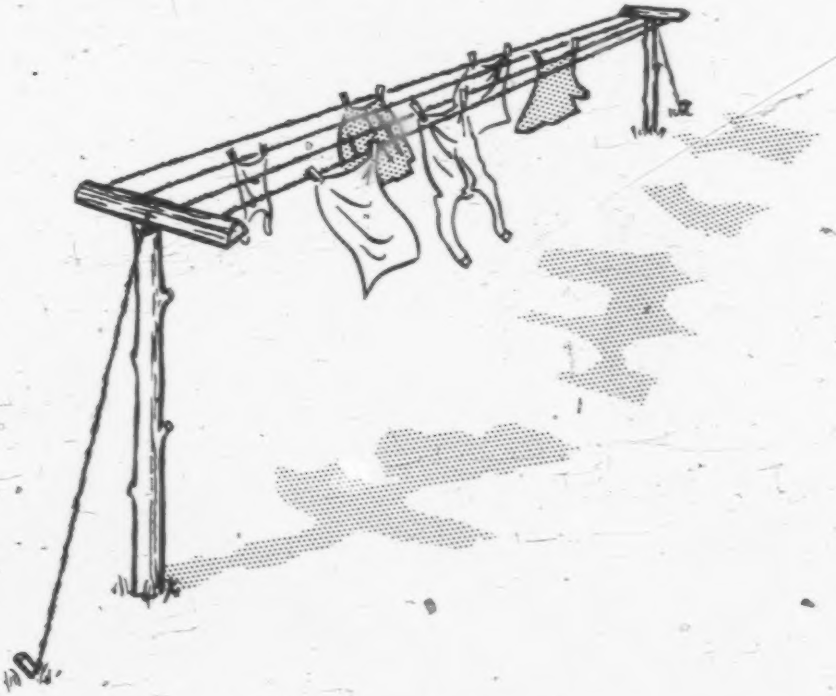


Washboard made from Bamboo.

Maybe this is a first step to the use of a suction type aid with which Dutch housewives ease their washing burdens. This, made out of light-weight wood waste tin or other metal, is fastened to a handle. When clothes have soaked for a period, this device moved up and down on the clothes, literally sucks the soil from the fabric.

A village craftsman skilled in working with wood, copper or tin need only be shown the diagram and the principle of this simple device. He can make it without further instruction.

You may help to create a new village industry.



Clothes line made from twisted grasses.

Soap Making

The source of soap or other substances in washing fabrics is a major problem. Each country has found some ways for solving this. Leaves of certain plants in parts of South America are beaten to produce a pulp that is rubbed on soiled clothes as soap. "Saca Tinta" or blueing also comes from the leaves of certain plants. When boiled it makes an acceptable aid to whiten clothes.

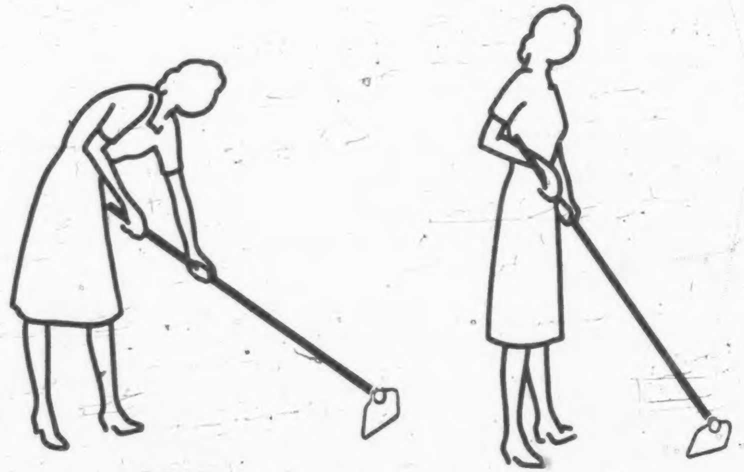
In Greece waste fats of olive dreggs are combined with lye to make a hard soap. A fair soft soap was made in pioneer days in the United States with surplus fat and liquid lye, and made in the "ash hopper" that was a part of every farmstead.

For such a process, wood ashes were saved and put in a wooden barrel. Placed on a raised platform (6 to 8 inches high) the barrel was tipped on one side, and a hole bored in the bottom of the tipped side. When water was poured in this "ash hopper", it ran through the ashes and dripped out through this hole in a waiting bucket. This was liquid lye, not strong enough for hard soap but when boiled with surplus fat became a fairly efficient soft soap.

This lye when weakened with water, was also used to boil corn to produce homemade lye hominy, a good food popular with many families. The lye helped to remove the outer shell from each grain of corn.

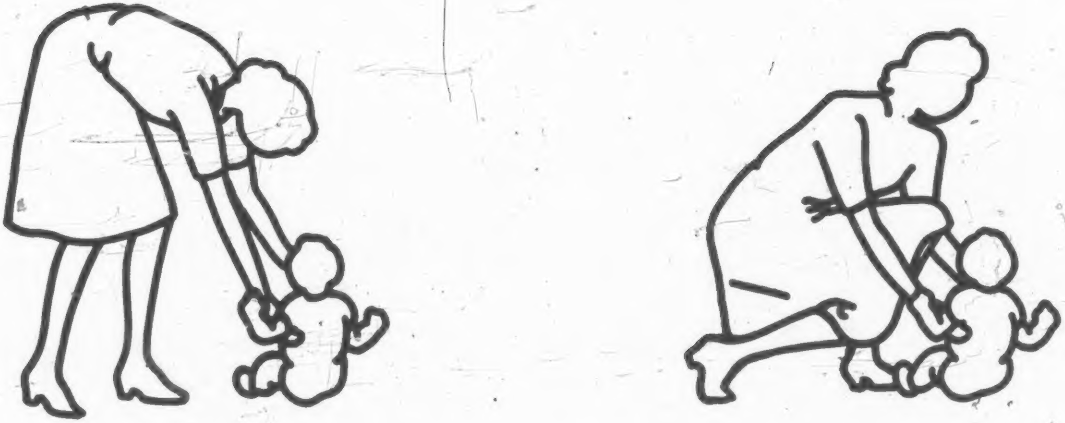
As you work with homemakers to improve the ways they work you will find that the heights of the surfaces on which they work vary. So will their positions when working. Some will bend to the ground, others will sit or squat on or near the ground. Because they are used to this, such postures may not be either uncomfortable or unnatural.

But they might be helped to know some of the physical demands made on the body in working at different height levels. This could be shown on a blackboard, by drawing stick figures. Charts or posters could also tell your story.



Back bending is back breaking.

Working posture.



POOR GOOD

Substitute leg muscles for back muscles.

Lifting posture.

Suggested Method Demonstrations in Home Management

1. Demonstrate the making of kitchen utensils from kerosene or other tin cans (vegetable grater, colander, sieve, etc.)
2. Show the making of a suction type washer -- for washing clothes. Use this in washing some clothes.
3. Demonstrate making of hard soap or soft soap using waste fats and a commercial or homemade lye made from ashes. Use this in washing some clothes.
4. Show how wash board can be made -- using bamboo or other native woods. Demonstrate the way in which it is used.
5. Show how clothes line may be made of strong grasses twisted -- and how clothes pins can be carved from wood. Show how clothes can be hung so that ironing is not needed.
6. Demonstrate the making of hanging shelves -- either to be nailed or put together with thongs.
7. Show how a corner set of shelves can be made to increase storage space in kitchen or other room.

The Control of Household Insects*

Insects find their way into homes, no matter how careful the housekeeping. Damage can occur to foods, clothing and woodwork. Some insects carry diseases and some are merely irritating. Good housekeeping and good sanitation is important in controlling and preventing infestations.

A small hand sprayer or duster are all the equipment needed to control household insects. A brush or feather to paint surfaces will sometimes suffice.

Bedbugs --

Bedbugs, often called chinches, feed principally on blood. They usually feed at night biting people who are asleep. As they bite, the bedbugs inject a fluid into the skin that helps them get blood. This fluid irritates the skin and welts develop. There is much itching. It has never been proved that bedbugs are disease carriers in the United States.

Bedbugs may be serious pests in poultry houses or in buildings where rabbits are kept. They may also feed on birds and other animals. It is believed that under some conditions bedbugs can live a year or longer without food.

In the beginning of an infestation bedbugs are likely to be found only on beds, hiding under tufts, seams and folds of mattresses or other sleeping pads. Later they spread in cracks and crevices of furniture and walls.

Insecticides --

Pyrethrum and DDT are the insecticides that are most effective against bedbugs. DDT sprays give long lasting protection.

Pyrethrum has long been used in controlling bedbugs. It has been improved by the addition of a chemical such as peperonyl buloxide, sulfoxide or sesame oil concentrate. These chemicals are called synergists. Pyrethrum sprays for control of bedbugs should contain not less than 0.2% pyrethrins and at least 1% of the synergists mentioned.

Kerosene solutions of DDT, emulsions of DDT or suspensions of DDT are used in bedbug control. Kerosene solutions of DDT may be purchased in many countries ready for use. It is the most effective and satisfactory spray for use against bedbugs in the home. Kerosene alone will kill the bugs coming in direct contact with it. Kerosene and some other solvents should be used with caution to prevent fire.

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*Extension Bulletin 472, State College of Washington, Pullman, Wash.

Kind of Sprayer and Way of Using —

A small hand sprayer giving a continuous spray, held within a few inches of the surface to be treated may be sufficient for one or two rooms.

A home made spray, made by punching tiny holes in a metal top of a glass container may be used, although less effectively. A cloth tied over the nose and mouth will reduce to a minimum the amount of mist breathed. All doors and windows should be open while spraying. A pyrethrum (with a synergist) leaves a deposit that is effective for several weeks. It should be applied at six weeks' intervals until the bugs are under control.

A single treatment of DDT rids a room of bedbugs within a few days. Deposits prevent reinfestation for about six months.

Spray the bed-frames, springs, legs and all cracks and crevices. Apply a light mist treatment to the entire mattress and heavier treatment to the seams, tufts, and folds of bedding at least four hours before using.

Apply enough spray to wet the surface, but not enough to drip or run off. The solutions may be applied to walls with a brush, but this takes more time than spraying.

The use of DDT dust (10%) may be desirable on beds that are soon to be occupied but the dust shakes off and cannot be relied upon for long lasting protection.

Ants and Other Household Pests —

These may enter homes and infest food supplies. Some species of ants like sweet foods; others prefer grease and meats. Sprays containing 2 or 3% chlordane in stainless kerosene may be used, applying the solution to runways where ants travel.

Several kinds of beetles, weevils, and moths infest flour, cereals, spices and other dry food products. Such foods are perfect for insect infestation as temperatures are ideal and ample food is available.

The flour beetle is about 1/8 inch long, smooth, and reddish brown. The larvae are about 1/2 inch long with yellow brown bodies and black heads. They infest flour, cereal products, and other stored foods.

Grainary and rice weevils are similar in appearance and habits to the flour beetle. The adult weevil is about 1/8 inch long, dark brown, and cylindrical with a long snout or beak. The larvae are white, legless grubs. These insects prefer whole grains and the grubs live inside the grain, but they will also feed on spaghetti, macaroni and similar foods.

The sawtoothed grain beetle is about 1/8 inch long, dark brown, slender and flat. The larvae are white with dark markings and rather flat. The insect feeds on cereals, cereal products, nuts, dried fruits and other products.

The two most common species of flour and meal moths are the Indian meal moth and the Mediterranean flour moth. The first is a pearl gray with the top two-thirds of the forewings metallic copper colored. The Mediterranean flour moth is gray, has forewings with wavy black lines and dusky white hind wings, with dark margins. The larvae, which are white or pinkish, spin webbing through the food they infest. They eat cereals, dried fruits, chocolate, candies, shelled nuts and similar foods.

The first step in the control of insects infesting stored food is to find the infested material and destroy it. Remove all food from storage areas, making sure all spilled material is removed from cracks and other places where it may lodge. Then clean and spray the storage area with 5% DDT in kerosene. Food which has been exposed, but shows no sign of damage, may be placed in shallow pans and heated in a low (110° F.) oven for 1/2 hour. The oven door, propped slightly open will prevent scorching. Uninfested or heat-treated foods should be stored in containers with tight fitting lids.

> All insecticides are poisonous in varying degrees and are to be handled with care. Avoid prolonged breathing of mists containing insecticides. Wash off any solution spilled on the skin. Many liquid solutions of household insecticides are inflammable and should not be applied near flame or heat. Household sprays are not to be used on pets or house plants. Do not use insecticides on foods or food utensils.

HEALTH
AND
SANITATION

HEALTH AND SANITATION

Your efforts in health and sanitation work may be a very important contribution to a country. If the country to which you are assigned has an agency whose function is to improve health and sanitation, you will want to study ways in which your program and the program of the agency may be correlated.

For example, villages have wanted help in organizing a training program for midwives, which home economists can do, although they are not trained to teach midwifery. Through the home agents you may also help villagers obtain other services and facilities which are available through existing agencies.

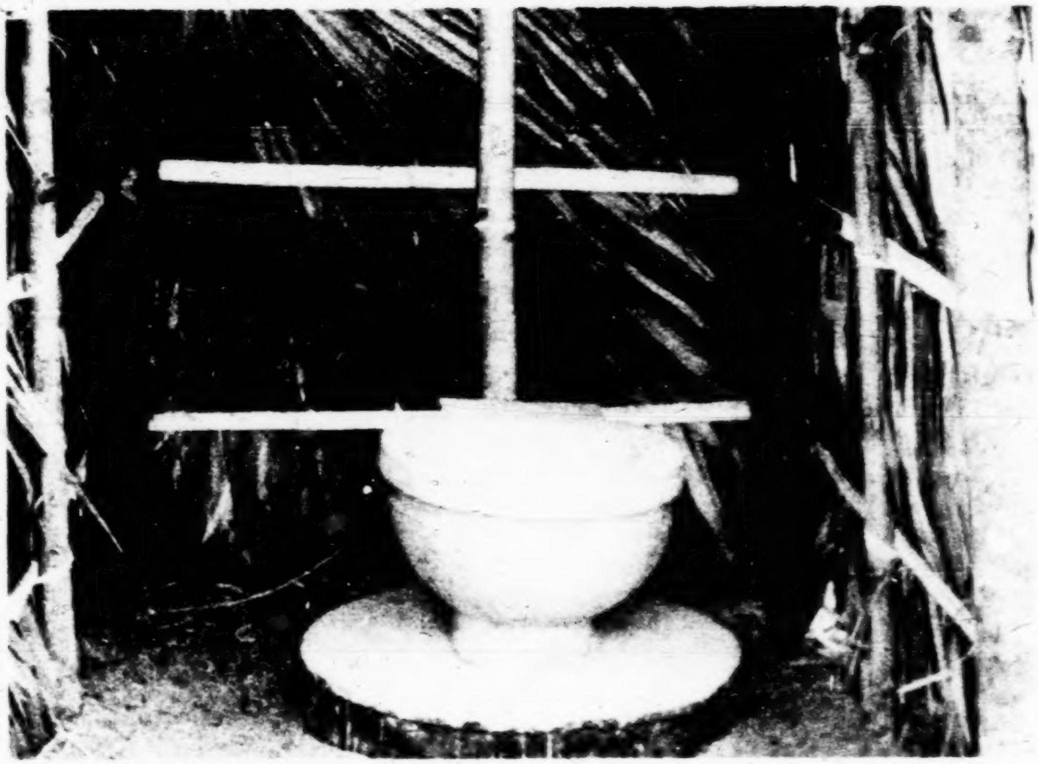
Sometimes you can arrange for meetings at which skills are taught. An example of this is a short course for village craftsmen in the construction of covers for latrines, or even the latrines. As a home economist you are not likely skilled in this field, but you can learn who can teach the subject and help to arrange for his services. You and the home agents with an overall knowledge of the subject are able to judge the merits of different construction plans.

To bring about some changes, in and around the homes, the service of carpenters, masons, blacksmiths or potters are needed. Carpenters can be taught to make a simple windlass for a well which plays an important part in assuring a clean water supply. But the villagers must want such a windlass before you should help them learn about it. The process of opening that "want" gate is part of your extension education program.

An extension program makes people conscious of needs, thus creating new desires. You may want to talk with village merchants about new materials and equipment, insecticides, plumbing supplies, and the like to help build existing supply lines rather than new and competitive ones.

Villagers in Pakistan have been helped to obtain earth boring augers to bore pits for latrines and improved soak pit construction. Some have become so proficient in such services that they do this for other villagers for a fee.

You and the home agents will discuss improved sanitary toilets, in terms of what the people themselves can build at little or no cost. Soon you will find that the more ingenious ones will try improving homemade ones.



An improved toilet in the Philippines. Note the use of bamboo and the palm fronds to give privacy.

In the United States, while home demonstration agents taught the making of homemade kitchen sinks from discarded tin cans, the desire for an even better sink was sold. It wasn't long before those she taught were not only making improvements on the sink but many were finding discarded sinks and repairing them. Some were purchasing new ones and raising extra chickens to sell to pay for them.

There are many services you can contribute to a health and sanitation program. Some specific things are included in this publication under the headings:

(a) Disposal of human wastes -- kinds, ways of building sanitary toilets.

(b) A safe water supply — principles involved and some simple suggestions for improvement of existing water supplies.

(c) Simple health practices in the home.

Most of the information that follows has been contributed by countries who have pioneered in health and sanitation practices.

Disposal of Human Waste

Sanitary toilets were introduced in the Philippines by the Extension Service, largely through this simple, powerful statement:

> "The Philippines can be strong when its citizens are healthy. Cleanliness is necessary to health. One key to cleanliness lies in the proper disposal of waste. Human waste, disposed of carelessly, can cause sickness and misery. Every family should have a sanitary closet."

The Philippine program for the building of sanitary toilets emphasized two important points on sites:

1. The toilet should be at least 30 meters from source of water for drinking, washing or bathing.
2. It should be on a lower level than these water sources. Two methods were taught, the pit method and the drum method.

The Philippine Pit Method for Building Sanitary Toilets

Materials include boards (empty fruit crates will do), bamboo poles and slats, a few nails, or rattan and nipa thatches or coconut leaves. Nine steps are used in building this pit type sanitary toilet.

1. A pit is dug, 4 feet deep, 4 feet wide, and 4 feet long.
2. If the soil is loose, and the sides fall in, strengthen walls with woven bamboo slats or boards nailed together. Coconut trunks cut in half lengthwise may be used for this.
3. The pit is covered with sturdy wooden boards or bamboo flooring. (To prevent flies from getting into the pit, cover the bamboo floor with soil or gravel.)
4. Cut a hole 12 inches long by 6 inches wide on the floor. Don't make too big a hole, lest a child fall through.
5. Make a lid or cover for the hole. This may be removable or hinged for raising and lowering.

6. For privacy, build walls around the toilet about 4 feet wide, 5 feet long and 8 feet high. Provide for a door. You can use nipa or woven coconut leaves for this. A roof can be made of the same materials.

7. Each family must be taught to use the toilet properly. The hole is to be kept covered when not in use so flies will not reach the waste matter and spread disease.

8. After some time the pit will be filled. The light materials you use to build your toilet will also decay. When this happens, start planning your next toilet.

9. When the toilet is unfit for further use tear it down. Fill up the pit thoroughly with the soil dug from your next toilet.

The Philippine Drum Method For Building Sanitary Toilets

1. Two empty gasoline or asphalt drums, about 34 inches high and 34 inches in diameter.
2. Pine boards or empty fruit crates to make into a covered seat.
3. A sheet of galvanized iron for the vent pipe and receptacle. A bamboo tube may be used for the vent pipe and a couple of petroleum cans for the receptacle.

Building the drum privy requires seven steps:

1. Dig a pit deep enough to hold the gasoline drum. If the water table is deep, bury the entire drum in the pit. If it is high, the drum should be a little above the level of the ground. The section above the ground may be filled around with gravel and sand.
2. One drum will last only a year, hence the use of two drums is recommended to make the pit last about 10 years. The two drums may stand side by side with a connecting tube between or the second drum may lie on its side beside the first one. In either case the second drum must have an open bottom. This permits the overflow from the air-tight drum to seep to the ground and serve as fertilizer.
3. The vent pipe is attached to the air tight drum. It may be an 8-foot bamboo tube with nodes hollowed out of a 3-inch diameter, galvanized iron rod.

4. A funnel-shaped receptacle made of flattened petroleum cans catches the dirt and empties it into the drum. It may be placed directly above the drum or connected to one side of it by a tube.

5. Be sure the connections are soldered and airtight, otherwise a foul odor will leak out.

6. Construct a seat of pine or other boards. It should be 18 inches high, 16 inches square. Cut a hole 10 inches in diameter on the seat. Provide the seat with hinged cover of wood. Place seat directly over the receptacle, and nail it securely to the floor. The effectiveness of this method of disposing of human waste depends on plenty of water for flusning. For this purpose provide a container of water and a gallon can inside the privy. Walls may be built around this for privacy as for pit toilet.

7. When you have finished construction of the toilet, endeavor to get everyone in your community to build one. Better still, make the building of sanitary toilets in every home a project for your rural improvement club, village council or 4-H Club.

India Uses Flannelgraphs To Teach Toilet Building

In India Extension workers have taught the use of the bore-hole latrine. (With a flannelgraph method of teaching.) Here the person who is teaching adds and removes pictures from a blackboard of flannel as he talks. This is most effective with groups of less than 20 persons.

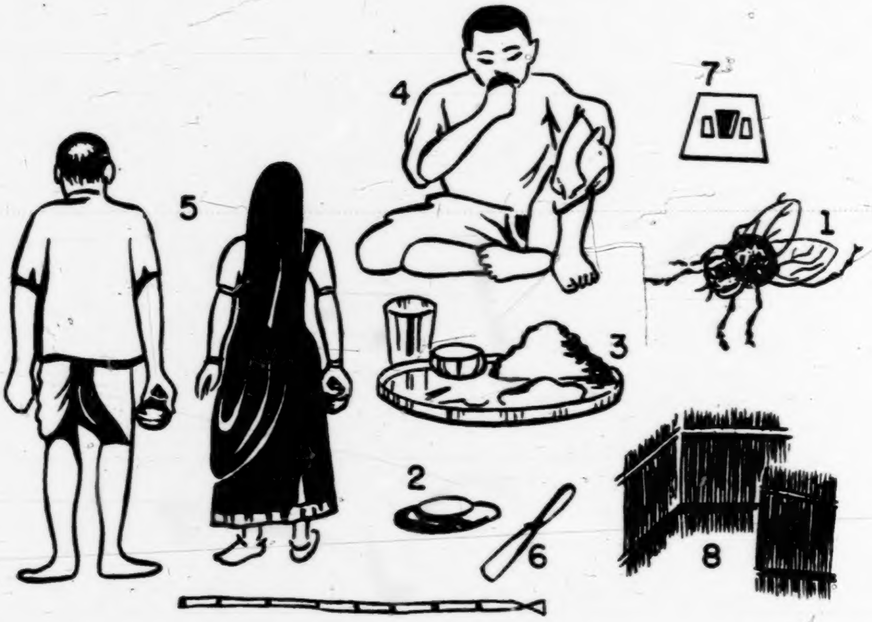
1. Before using a flannelgraph with an audience, practice with it alone, learning to give your comments smoothly.

2. Cut out pictures and paste small strips of sandpaper or flannel on back of each. They should be placed so the entire picture clings to the flannel.

3. Keep your eyes on the audience. A brief glance at the flannelgraph as you add or remove a piece is sufficient.

4. Flannelgraphs provide a good technique to get the audience to take part. After demonstrating the flannelgraph once, get someone from the audience to come up and go through it with you.

5. When the audience is composed of women, use the figure of a woman.



Figures for flannelgraph demonstration on latrine.

Commentary to accompany the flannelgraph demonstration

1. What insect is small, doesn't bite, is a familiar sight in every home and one of the most dangerous creatures in the world? It is the fly. (Agent puts up picture of drawing of fly.)
2. Here's why the fly is so dangerous. It settles on animal waste. (Place picture of faeces (2) under fly left uncovered in the fields near the village.) When the fly leaves it will carry on its legs particles of waste matter. This frequently carries the germs of such diseases as typhoid, cholera and dysentery.
3. Now let's take a look inside somebody's home. Here is the family getting ready to eat a good meal. (Put up figure of seated man and place the plate of food in front of him.)

4. And now look. Here comes the fly, his legs covered with disease laden filth he has just been sitting on. The next place he chooses to sit on is the food which the man is about to eat. (Move fly from faeces to food.) The fly's contribution won't improve the taste of the food. The man will be lucky if he doesn't become ill with a bad case of typhoid, dysentery or cholera.

5. Of course you want to know how to prevent the fly from contaminating your food with the disease germs from human waste matter. (Remove all pictures.)

6. The best way to protect yourself is to see that no human waste matter is left exposed to the air where flies can sit on it. When you go to the fields (Put up figure of man or woman) take a spade or trowel with you. (Place the spade in the figure's hand.) First dig a hole with dirt. If you do this, there will be nothing to attract flies.

7. Or better still, build a latrine. (Remove spade from hand, put latrine nearby.) Besides providing good protection from flies, the latrine is odorless and provides privacy for you and your family.

   But remember that it is important that everyone in your village uses either a latrine or a spade. As long as a few people continue to use open fields carelessly, the people in the village will continue to be in danger of cholera, typhoid or dysentery.

Circular Teaches Use of Night Soil

As you teach people cleanliness in the care of human waste you may want to relate this to the dangers of using fresh night soil. Extension workers in Taiwan prepared a very simple, well illustrated circular to help people learn not to use fresh night soil.

The precautions they used follows:

1. They used only properly prepared night soil (stored 1/1-2 months in summer and 2-1/2 months in winter).

2. They wore shoes outside their house, and rubber shoes when working in their vegetable garden.

3. They used a hoe or shovel as they worked in the garden instead of touching the soil with their hands.

4. They washed their hands well with soap or ashes and water before eating and after their toilet.

5. They used a toilet or container instead of the yard.

6. They cooked most of their vegetables and the ones they ate raw were washed carefully with soap and water.

7. They kept their fingers out of their mouths.

The Improved Stove Aids Cleanliness

The meaning of the improved chula or other type of stove, becomes greater when it can be used for more than food preparation. Its use to heat large quantities of water for drinking, bathing, or washing utensils and clothing (where water is not scarce) is one insurance against disease. At the same time, as large quantities of water are heated, dangers to small children who may pull containers over on them become greater and precautions must be taken.

A Clean Water Supply

A home agent must know why unprotected water is a menace to health, else she become perfunctory in her efforts to teach villagers about the benefits of clean water.

Some extension agents are said to rather glibly show villagers flash cards on values in safe water and do nothing to provide good water for their own homes. Every village worker must be helped to become an example of what she teaches whether it is in the clothes she wears or in the cleanliness she recommends. Extension workers throughout the world have helped materially in improving water supplies.

In Pakistan, the Agricultural and Industrial Development Agency (the country's Extension Service) has subsidized "Tube" wells (bored wells with casings and pumps installed) for villagers. Much educational work preceded the actual construction. In dry areas of West Pakistan, there is a scarcity of water in villages and some women must walk 3 or 4 miles to a well. They return to their homes carrying their 1-1/2 gallon jugs of water on their heads. This is their water supply for a day.

Some unusual village wells in Pakistan are termed "step" wells. Here circular steps 300 years or so old descend into the well to a water level. The villager dips her bucket into this exposed water supply and climbs her spiral staircase to the top of the well.

Another Extension program in Pakistan centers around the cleaning and repairing of old wells. The tops of these wells are concreted and the drainage so built that spillage doesn't go back into the well.

Seven Ways to Get Safe Water

A 4-page illustrated leaflet from the Bureau of Agricultural Extension in the Philippines gives statistics by districts on all types of water-borne diseases. These are from the Bureau of Health. This bulletin suggests five ways to insure a safe water supply.

1. "Teach every family to construct a toilet at least 30 meters away from the source of water supply.
2. Suggest to all Agricultural Extension and village organizations that local action be taken to have a safe water supply in each village.
3. Encourage installation of artesian wells with the financial cooperation of several families, if funds are not available from government or private sources.
4. Teach the people how to cooperate with the district sanitary engineer and municipal sanitary inspector.
5. Encourage local dealers to sell water containers with covers and faucets. If water is unsafe to drink, boil it for 20 minutes, exposing it to fresh air while cooling for better taste."

You will know, of course, that in many countries there will be no sanitary engineers and few statistics on which to base any program to get safe water. In some places, the water itself will be so scarce that a small amount will have to do for cleaning, cooking, and drinking. Families themselves, by groups or individuals, may be your best source of information on the incidence of disease, directly traceable to a water supply. As they discuss this with you and the village agents, you may plan together for a safer water supply and cooperate in bringing it about. As you talk with them you will no doubt study ways that some of the families protect their water supply. Are some of the water containers safer than others? Are precautions taken by some that others should practice? Has anyone worked out a method for filtering that makes water safe?

Home economists and health workers from some countries point out the sheer difficulty of boiling water when water is scarce, fuel is even more so, and there is a lack of suitable containers to boil and store the water. In addition there is an objection to the taste of boiled water. Each such problem will have to be dealt with individually. Any educational program to get a safe water supply under such conditions must be a simple one, based on recommendations possible of achievement by the family with the lowest income. Here again "beginning small" may lead to larger accomplishments.

Simple Skills May Inspire Improvements

Home demonstration agents can show how individual drinking cups may be made from coconut hulls. Many rural people in the United States still grow gourds which are a favorite drinking cup when dried and cut, dipper fashion, and hung in the sun.

The installation of a commercial faucet may help to prevent contamination that comes when dipping is done from the top of a container.

A demonstration in boiling water may be needed, particularly if you show how that the taste of water may be improved if cooled in fresh air. Use a level to show the group some simple drainage principles that may keep water from getting contaminated or find a suitable filtering method that will improve the water. Any one of these may be all it takes to inspire an individual or a village to use its own initiative in providing a safe and abundant water supply.

Getting Rid of Waste Water

If waste water is safely removed from the sink, breeding places for mosquitoes and harmful bacteria are also eliminated. The removal also improves the yard.

In the Philippines a homemaker series of bulletins shows how this is done in four easy steps.

1. Use a smaller rod to remove nodes inside a bamboo tube.
2. Paint the bamboo pipe with creosote or asphalt one foot above the ground and one foot below, to make it last.
3. Protect bamboo pipe by piling stones around the base.
4. Remove leftovers from dishes before washing them in the sink to prevent clogging in the bamboo pipe.

Health Practices in the Home

As a home economist the organizational and preventive aspects of health problems rather than the curative are your concern. You will want, however, to know all the health services and facilities that are available to families. You will also help people organize themselves to obtain needed services and facilities. In every phase of a home economics educational program there will be health and sanitation aspects of great concern to you.

In foods and nutrition, the home economist through village agents will emphasize the necessity of a good diet to maintain health; in home management you will teach practices that may prevent accidents and ill health; in clothing you will point out clothing practices that foster good health and accident prevention. Your choice of what to help the home agent teach will center around positive and preventive measures.

Information on cleanliness and its importance to health as adapted from a Jamaican home economics publication may fit into needs for basic subject matter.

Cleanliness -- Remove Dust

Cleanliness is closely related to good health. Dust dislikes fresh air, clean places, and sunlight. Germs like dust, dirt, disease, and dampness. Dust is made up of very small particles of stone, wood, skin, hair, dried excrement, and other substances. Living organisms grow on the animal part of dirt, the dangerous part, waiting a chance to spread, as dust lights on food, clothing, or surfaces which are around us. Dust is light, but heavier than air and sticks to damp surfaces. When it is entangled with grease it is hard to remove. It is important to remove dust not only for health's sake, but also for appearance and the destructive effect it has on clothing.

One principle in the removal of dust must be remembered. Remove as quickly as possible in such a manner that it is not scattered about. "I cannot have a good floor," a very poor woman in Puerto Rico said, "but I can keep my earth floor swept and my broom clean." Your own emphasis on cleanliness may start with the making of an improved homemade broom from the tall grasses or other material that are locally available as you teach the importance of sweeping carefully. Information on correct sweeping may include:

- Sweep from the highest part of the room downward.
- Avoid scattering of dust.
- Sweep to a given point.
- Gather and burn at frequent intervals.
- Use short easy strokes, sweep away from self.

Dusting carefully may be a next point, such as:

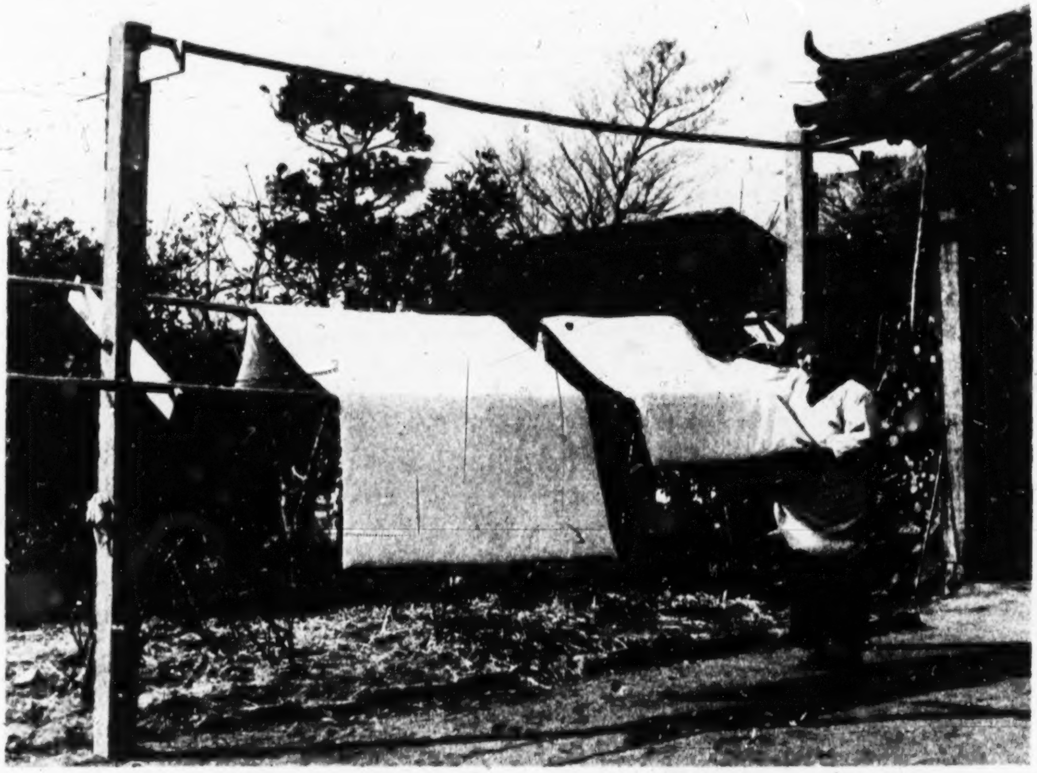
- Sweep before dusting.
- Allow time for dust to settle.

- Use clean soft cloths folded into pads for dusting.
- Wash duster after use and dry in the sun.
- Dampen duster for collecting dust in a sick room.

It is always easier to keep things clean than to make them clean when they have become very dirty. So some cleaning should be done daily, such as removing surface dust, tidying up generally and keeping bright any special articles, such as copper or brass.

During cleaning and for a period afterwards open all doors and windows except when it rains or in extremely cold weather.

All bedding should be aired daily and cleaned regularly, including the bedstead. Mattresses, mattress pads, or other type bedding should be shaken in the open air and sunned often. When soiled, they should be washed.



Bedding in Japanese home is sunned on a bamboo and plank clothesline.

Sheets of paper, placed under mattresses or other bedding when in use, prevent air from passing through, and contribute to warmth in sleeping. In case of infectious illness, all bedding should be soaked in disinfectant where possible, before washing and sunning.

When mattresses, sleeping mats and wooden beds are neglected, vermin (bed bugs) may appear in some households. Local or national agencies will have research findings and recommendations on their control.

Personal Health and Hygiene

The teaching of personal cleanliness and hygiene is a highly personal matter and must be approached thoughtfully. It may be a subject that will need to wait until many relationships have been built up between the home agents and the village families. Try to find a felt need, as expressed by the women themselves before beginning educational work on this subject. An expression for such a need may come as you work with the women on other subjects in which they are interested.

A Japanese home demonstration agent, for example, showed a group of women who work in rice paddies how to make work clothing that is comfortable and right for such work. As the group talked together about the value of such clothing it was easy and natural for the group to talk also about the cleanliness of their bodies and the importance of a clean body to health.

All women have one interest in common, a good personal appearance. You can relate this to the practice of washing the entire body often, of washing the hair carefully, and of brushing the teeth after meals. Small skills which you may teach the women and girls will contribute to the total effectiveness of your teaching.

An acceptable tooth brush can be made from the wood of many trees. Common table salt or baking soda or a combination of the two make good cleaners of teeth.

The making of a substance to do away with body odor could be one of these skills, a combination of salt and soda as basic ingredients.

Many of the women will know of plants which, when mashed and the pulp extracted, make a type of soap which is useful in bathing.

An important beginning will be made in hygiene when the home agent sets a good example in her own person. Actually her home must be a model and her life an example to all the village.

Other forms of personal cleanliness such as menstrual hygiene may be more difficult to approach and yet it is a subject of importance to village women and girls.

Through the ages in many countries menstruation has been bound about with superstition and misunderstanding. In some areas of the world women hide in shame during the menstrual flow.

Health authorities have given the lie to old beliefs in the United States that washing the body or public parts is harmful during menstruation, provided the person does not become exposed or chilled.

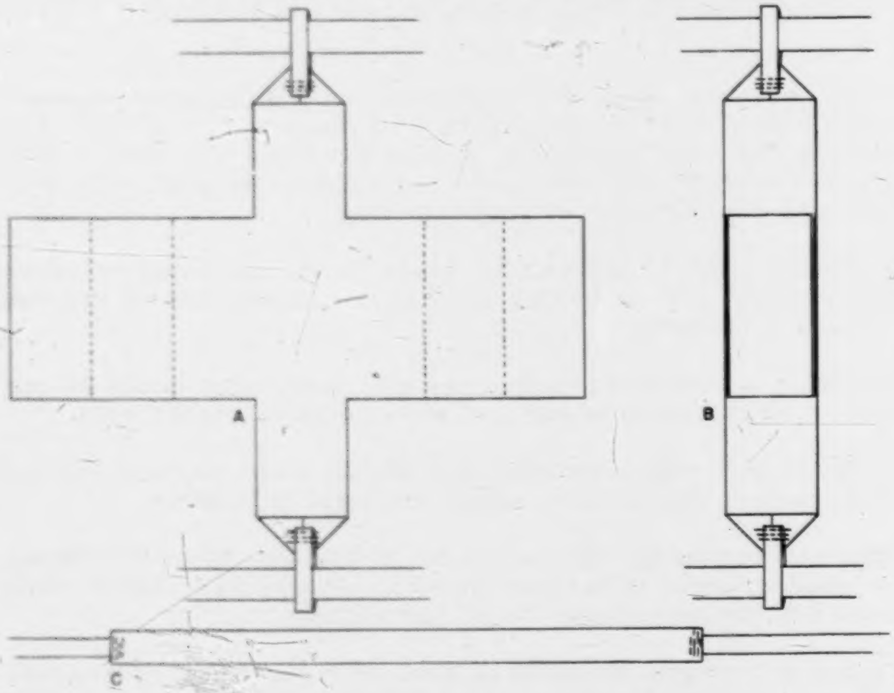
You will want to consult however, with local health authorities on recommendations for cleanliness during the menstrual period.

Home agents in many countries have given aid to women and girls through:

- A demonstration on the preparation of a simple sanitary belt and napkin.
- Information on the value of cleanliness during this period.
- Information that will replace legendary superstitions connected with the flow of the menses.

Sanitary napkins and belts are unknown in a large part of the world. Home economists can perform a real service in teaching the making and use of simple sanitary belts and washable sanitary napkins.

One such belt and napkin is illustrated below.



Washable homemade sanitary napkin and belt.

This is made of any available cloth that is soft and clean. The first step in the making will be to make a simple 2-inch wide belt of the length necessary. This is folded and tied with strings at the waist.(c) You can then cut out a cloth of the size needed.(a) It should be hemmed, but this is not absolutely necessary. A string is used to tie this on to the belt, as illustrated.

When folded,(b) this cloth has the thick absorbent part in the center and the two ends are ready to be tied to the sanitary belt in the front and the back in a comfortable position.

The making of a sanitary belt and napkin might be a good method demonstration for a group meeting of women and girls.

Clean Hair

Clean hair can do much to improve a homemakers outlook on life. A mild soap with which to wash the hair seems desirable, but in some countries local preparations derived from native plants are used. Olive oil is almost universally used in areas where it is available to keep the hair from being too dry.

Sometimes when hair is neglected and not washed or combed for a long time, vermin collect and breed. Such head lice lay their eggs on each strand of hair, fastening them there with a sticky substance hard to remove. In time they hatch and eventually lay more eggs.

Children particularly suffer through neglect to keep the hair clean. While the eggs may be removed from the hair by brushing with ordinary vinegar, and lice can be taken out by careful combing, a much more effective control will be through the use of insecticides. (See paragraph on body lice.)

Insects and Insecticides

As you come in close contact with the real problems of people you will become aware of some insect pests that are relatively unknown to most people. But to many of the world's less fortunate inhabitants some of them, human lice for example, are inseparable companions. Home agents' contribution to the control of these and other troublesome insects can be a significant one, if they study the research each country has made on insect control and the recommendations which have come out of such research.

You can also get from the regional offices of the World Health Organization of the United Nations the specific recommendations for an area. Information from such sources can be a part of the educational program with which you work. You can also help groups organize to obtain information and assistance in the control of insect pests from existing health or agriculture officials.

Supplies of recommended insecticides may present a problem in some countries. In other countries the plants from which some common insecticides are derived are grown commercially and are therefore easily obtainable. This is true of pyrethrum and Derris (or Cube from which the active ingredient of Rotenone is obtained).

Insects have built up a tolerance (or resistance) for some insecticides in common use in some areas, especially when they have been used over a period of years. In this case where one type has ceased to be effective another will usually be recommended. DDT became widely known throughout the world during war years. It is easily available in most countries, and a knowledge of its use is widespread.

As you learn of insecticides recommended for use locally you will want to familiarize yourself with the precautions for their use. In other words, with your opportunity to assist in the control of troublesome pests comes also a responsibility to see that control measures are properly and safely used. Much educational work is involved in such safety work.

The control of insects in the garden, with animals, and in the household should be a part of any educational program in gardening, dairy, poultry and home management. Here again, consult local research if it is available.

The Control of Human Lice*

Three kinds of lice attack human beings, the body louse, the head louse, and the crab or pubic louse. All these lice are worldwide in their distribution. The body louse, from a medical viewpoint is most important because it can carry diseases, the most serious being epidemic typhus. Head lice have proved capable of transmitting typhus under experimental conditions. Crab lice are not known to transmit disease.

The Body Louse lives in the clothing and visits the skin several times daily to feed. Undergarments are most heavily infested, but some may be found on outer clothing. Eggs are deposited on the clothing, particularly in the seams and folds. Sometimes the eggs are glued to hairs on the body. Infestations of body lice are usually associated with poor sanitation. Adequate laundry facilities and enough clothes for a weekly change are necessary for control. Either washing in hot water or dry cleaning kills all stages of lice. If an individual changes to clean clothing once a week, control is assured.

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*As adapted from material by Gaines W. Eddy-Raymond Bushland, Bureau of Entomology and Plant Quarantine (Agricultural Research Service, U. S. Department of Agriculture).

Riddance of body lice from any group of people is now practicable because of the development of insecticides possessing residual action. One of the most satisfying is a louse powder -- 10 percent DDT in pyrophylite or talc. One ounce of the powder, applied over the inner surface of underclothing and an additional 1/2 ounce to the seams of outer clothing, will continue to kill lice for about a month's wearing. A satisfactory duster for family use can be made from a small jar or can having a metal lid by punching a few holes in the cover or by covering a jar with a thin cloth through which dust can be sifted. DDT louse powder can be applied with any shaker type container. Control measures will be more effective if carried out on a village or community basis. Large groups of people then can be treated by delousing crews using standard insecticide dusters. Where mechanical dusters are used, at least 2 ounces powder should be applied to each person being treated.

Head Lice can withstand frequent washings with soap and water and it is almost impossible to remove all lice and eggs by combing or

A delousing demonstration given in an Iranian village. Kerosene is first used, then the hair is washed with soap and water.

brushing the hair. The 10 percent mix DDT is applied with either a mechanical duster or with a shaker type container. The powder should not be washed from the hair for 10 days, so that young lice are killed as they hatch from eggs. Or an individual can wash his hair on the day after treatment, and a second application made 8 to 10 days after the first.

Other remedies such as larkspur lotion and kerosene in either vinegar or olive oil and derris powders and lotions have been widely used against head lice. These do not have long lasting effects and 2 or more treatments are necessary. They are not recommended unless DDT is not available.

Crab Lice -- Sanitation is less important in the control of the crab louse than for the body louse. The crab louse lives on the hairs of the body rather than the clothing and cleaning the garments will not free a person of lice. Crab lice can be controlled with 2 treatments of 10 percent DDT powder, the second application being made 8 to 10 days after the first. All hairy portions of the body including arm pits, chest, pubic and perineal region and the legs should be dusted and the material rubbed in with the fingers. The user should not bathe for 24 hours after applying the treatment.

Several other remedies, as sometimes given for body lice can be used. However, such materials are inferior to DDT and are not recommended. Derres powder or preparations with kerosene are irritating to tender parts of the body and should not be used in crab louse control.

Suggested Method Demonstrations in Health and Sanitation

1. Demonstration on making individual drinking cups from coconut hulls, gourds, other native materials.
2. Show how toilet seat is made from wood and fitted over bucket or chamber pot.
3. Demonstrate the washing of cooking and eating vessels using ashes (when soap is not available) and hot water.
4. Show how a sick person may be bathed in bed without over exposure.
5. Demonstrate correct boiling of water for drinking purposes showing necessity for cooling, good storage, and individual drinking cups.
6. Demonstrate ways in which body lice can be controlled through use of good insecticide and homemade duster. (See section on control of body lice.)
7. Show correct method of sweeping walls, floors.
8. Demonstrate correct drainage around the house so water will drain away from house. Drain one such premise.

HOME GARDENS

HOME GARDENS

You will not do a more important work than to encourage all rural families to grow a good garden for as much of the year as the seasons permit. There will be many aids within the country for doing this. Most areas already possess the knowledge necessary to grow the vegetables and small fruits suitable to the climate and soil. Some countries will have done much research on this subject.

You will want to know not only about this research but previous programs in home gardening and the kinds of educational literature already available for use in teaching it. You must also help people to want to grow better gardens. As you work with village agents, leaders or families, you can relate the growing of vegetables and small fruits to other parts of their program for better living. A good garden, for example, is a part of any work with foods and nutrition. Likewise, when families grow adequate garden vegetables and small fruits, less money will be needed for the purchase of food. Again as you work on such subjects as drying, brining, and other forms of food preservation you can emphasize the variety and quantity of vegetables and fruits that should be grown for a year round food supply.

The Location of a Garden

Some families will not have a choice for a garden location. They will just make the best of what is available.

If there is a choice, the best selection would be a well drained sandy loam soil high in organic matter, located near the house and not surrounded by trees. Most vegetables grow best in a sandy loam soil. It dries off more quickly after a rain, warms up earlier in the spring and is easier to work.

If soils are very sandy and low in organic matter, barn yard manure may be added or a green manure crop can be plowed under to increase fertility and water holding capacity.

Humus helps to loosen heavy soils and make them more productive. Humus is the dark colored organic material which results from the decay of manures or other forms of organic matter.

A garden which slopes with the sun is best for early crops since the sun warms the soil.

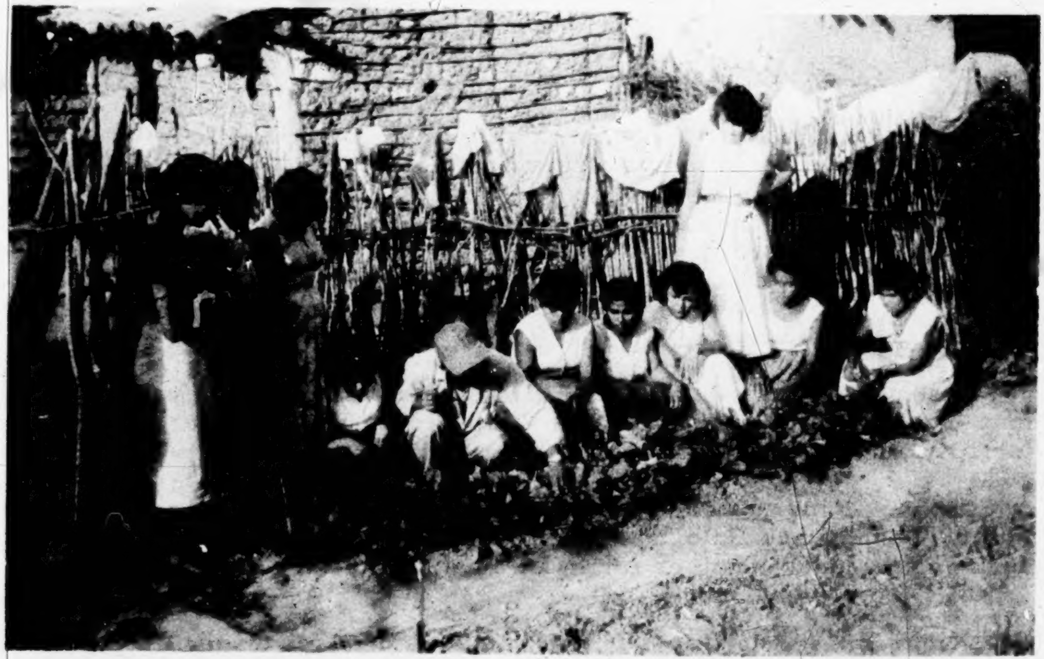
If the garden is on sloping ground, the rows should be across the slope on a contour, so rains will not wash away the good topsoil.

Having a garden near the house enables the homemaker to care for and harvest her vegetables more easily. Also thieves will be less tempted to steal the vegetables if they are close to the house. One agriculturist in India recommends that the garden be inside the wall of the compound, where it can be protected and irrigated.

Kind of Vegetables to Plant

Your agricultural co-workers will be your best guide on varieties that are suitable to the country's soil and climatic conditions. You will also want to know of any research findings available within the country not only on varieties but also on fertilization practices, cultural methods, and insect and disease control.

General information on kinds of vegetables to plant is applicable to most countries. You should emphasize the following important point: Of all the vegetables which may be planted, green, leafy and yellow vegetables and the legumes are mose desirable for good nutrition.



An agent in Honduras teaches "4S" members good gardening practices. Note protective fence and the construction of the building in the background.

Fertilizing the Garden

All plants in the garden need food much as our bodies need food. Fertilizers are food for plants. When fertilizers are scarce or high in price, compost may be used as a source of plant food.

Making Compost (Synthetic Manure)

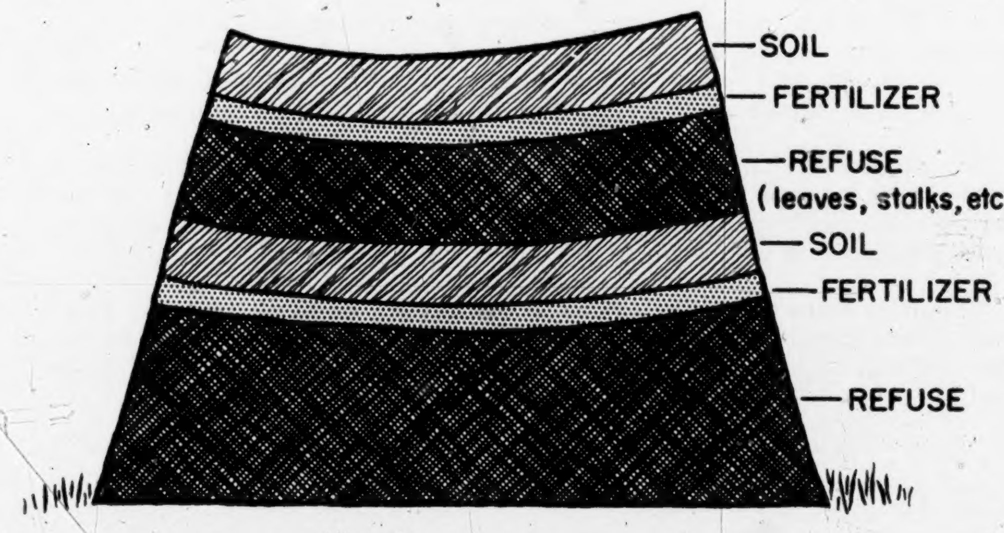
One of the oldest theories of plant nutrition, the "humus theory," is based on the beneficial effects of animal manures. When animal manures are scarce, compost is an answer to the need for humus to grow good gardens.

In nearly all countries there is much organic waste, such as leaves, grass clippings or sod, spoiled vegetables or fruit, garbage, corn stalks, and other garden residue -- which can be made into valuable compost.

Organic matter decomposes by natural agents of decay. This is the basic principle of making compost. The modern biochemical method of preparing compost is an improvement over the natural process. It is also faster and there is less loss of plant nutrient. There are many methods of making compost.

The following method has been adapted from a New Mexico Extension publication.

Making a Compost Pile



Compost pile, cross section.

By composting leaves and other waste materials a gardener can produce a good compost at little or no cost that will substitute for animal manures. Leaves, old bean vines, corn fodder, sawdust or other plant parts can be used.

A garden needs to be cleaned up in the fall so that a green manure crop can be planted. So put all the crop residue to good use along with other organic materials. A compost pile may be made in a trench one foot deep and three feet wide. The length will depend on what materials you have to compost, but 6 feet is a good length to start with.

Place a 6 to 8 inch layer of leaves and other plant materials on the bottom of this trench. On top of this sprinkle some lime and spread about 3 lbs. of a complete garden fertilizer, such as 10-10-10. This represents a fertilizer which contains 10% nitrogen, 10% phosphorous, 10% potash. Similar analysis fertilizers could be used also at about the same rate. A little animal manure scattered over this will inoculate the mixture. Then add 3 inches of soil and wet down. Repeat this operation until the pile is as high as desirable. Keep in mind the fact that you apply the fertilizer and lime to each layer of plant materials. When the pile is completed place 1 or 2 inches of soil on top.

Leave a depression in the middle of the top, so water will be retained easily and thus hasten decay of the material.

It is best to have 2 compost piles so one that is well rotted will be available throughout each season. If properly made compost can be available in 3 months. Compost is used in the same manner as manure in the garden and also applied as a mulch over the surface of the garden area. Mulches help control weeds, conserve moisture, assist water movement into the soil, and help keep the ground cooler for growing plants. Usually compost is spaded into the ground at the time of preparing the soil. By composting leaves a product similar to the highly prized leafmold of the forest can be obtained. Composting helps to destroy objectionable weed seed, insects, and disease organisms.

Sometimes the compost can be made right out in the garden between rows or where crops have already been harvested. Place the refuse in trenches and scatter fertilizer or manure over the material before covering with soil.

Green manure or cover crops like rye can be sown in early fall on areas where crops have been removed. When plowed or spaded down in the spring, it will provide excellent organic matter for the garden.

You Can Teach Compost Making Through A Method Demonstration

The making of a compost pile can be an excellent method demonstration. When you show a group how to do a piece of work by doing it yourself, you will be giving a method demonstration. Before you give a method demonstration on the making of a compost pile, you will want to be sure that it is a practice that will be of interest to the villagers and meets a real need for improving soil fertility and increased plant growth and productivity. You must also plan to give it at a time when it will fit into their needs. When you have satisfied yourself that a compost pile will be a real contribution to area gardening activities, ask the help of the people in selecting the family who will make the compost pile and in deciding on the time to start the work. They can also spread the word around so everybody will know about it. If this is something new to them, acquaint some of the leaders with the principle involved (i.e. decay to produce a manure) so that they will be convincing themselves and others that this may be a good thing to do. When the day comes several of the group can be asked to help in the work, such as digging the ditch, wetting the leaves, measuring the fertilizers, scooping up garden soil and layering all the material as you direct. As you talk about the values, involve the group in talking about their own experiences in similar composting methods. Try to get favorable opinions from the group toward making a compost pile. Work toward getting commitments from some of the members so that they will try the method on their return home.

WHEN PEOPLE COMMIT THEMSELVES TO AN
ACTION BEFORE THEIR FELLOWS, THEY ARE
MORE APT TO CARRY IT TO COMPLETION
THAN IT THEY'D REMAINED SILENT

Thus far you will have given a method demonstration to a group on the making of a compost pile. From now on out — as you visit back with this family and see that your directions are being followed you will be in the process of establishing an excellent result demonstration (see description of tomato variety demonstration, page 122), particularly as you involve the family in keeping records of the amount of time they've spent with it, the cost of the fertilizers used, and the increased value of the vegetables produced.

Such a result demonstration if located in a place where neighbors observe it from time to time can be a means for stimulating interest and getting other families to adopt the new practice.

Other Method Demonstrations Village Agents Could Give in Gardening

1. Demonstration on treating beans, peas, corn, and other seed for fungus or insect damage. (Consult country's agriculturalist for kind and method of treatment.)

2. Demonstrate the planting of tomato or other seed in boxes or flats for later transplanting in open garden.

3. Demonstrate the transplanting of seedling tomato or other plants from a box or flat into the garden.

4. Make the squeeze test on soil to determine its readiness to spade or plow.

5. Demonstrate the side dressing of plants with commercial fertilizers or manures.

6. Make a hand duster (glass jar with metal top with nail holes, or cheese cloth or other porous cloth tied over a can or jar), and dust vegetables for control of insects.

7. Demonstrate the staking and pruning (where recommended) of tomatoes.

8. Demonstration on the selection of vegetables in the garden when they are young and tender.

9. Demonstrate principles of garden irrigation. Show how it can be done in areas where water is readily available.

Teaching Good Gardening Through A Result Demonstration

You can help agents to know that there are many methods they can use in teaching good gardening. One method particularly adaptable to getting families to improve their gardens is the result demonstration. This is a way of teaching through an object lesson. "What a man hears he may doubt; what he sees he may possibly doubt, but what he does himself, he cannot doubt."*

A result demonstration in gardening could deal with a single crop, the growing of a new variety of tomatoes for instance. Or it could include a series of practices in gardening -- which could continue over a year or more. A result demonstration is to show the people the value of an improved practice or practices. This can be done by comparing a new practice with an old one so that anyone may see and judge the results for himself. You or the agents, should choose only such practices to demonstrate that you are reasonably sure are good and which are based on a real need. Before you select such a practice, check with an authority in gardening (a research institution or the Ministry of Agriculture will usually have someone who knows about gardening) to see if he thinks the new practice will work in the village. You may also want to talk the matter over with the villagers themselves. Do they know the new variety? Are they happy with the tomatoes they already have? Would they be interested to see a new variety or a new practice tested in the village?

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*Seaman A. Knapp, Founder of Extension Work in United States.

You may then select one or more of the villagers to conduct the demonstration on tomato varieties. This person must be one who has the confidence and respect of his neighbors. He must also be one who is interested in new methods, willing to carry out directions for conducting the demonstration, and agreeable to keeping such records of what he does as are necessary for its success. He should also live in a location where his neighbors can observe the demonstration. You should plan with this person the kinds of things he is to do, that is, measuring off the two plots for planting tomatoes of the regular variety grown; the other for the new variety to be tested. Be careful that he knows what to do, when to do it, and something of the results he may expect.

Steps in Carrying Out A Result Demonstration

1. See that all equipment needed is ready. See that seed is at hand for both old and new varieties.

2. Arrange a meeting at the two plots so that villagers will know what is planned and be able to see the demonstrations at the beginning, such as planting practices and cultural methods.

3. Help the demonstrator begin his record keeping: List the variety and kind of tomatoes planted, fertilizers added, date of plowing, etc.

4. Mark the plot with a suitable sign "Tomato Variety Demonstration," so that all who pass can see it.

5. A calendar of all work to be done will be helpful to the demonstrator. i.e. January — Prepare seed bed, apply fertilizer, plant seeds in flats; February -- freshen seed bed, transplant young plants to plots; March -- etc.

6. Visit the demonstration when you are in the village to see that all plans are being carried out.

7. If things are going well, give approval to the demonstration and tell others of the progress of the demonstration.

When results can be seen:

1. Arrange a tour to the demonstration.

2. Let the demonstrator do the talking, telling in his own way what he has done, how he has done it and the results from the two plots.

3. Let neighbors help measure the results at harvest time, noting quality, flavor, firmness, yield, and other important characteristics.

4. Get villagers to agree to try the new variety next season.

5. Make sure that supplies of the seed of the new variety are available for the next season and at a price the villager can afford to pay.

Charts and slides could be made showing the results of the tomato variety tests on the two plots -- and taken to other villages. Photographs might point up the differences in the production and quality of the tomatoes.

Fuel Versus Fertilizer in Manures

In some countries where fuel is scarce you may have a strong feeling against the use of manure as fuel, particularly when soils seem deficient in organic matter. You must realize, however, that in areas where fuel is scarce, it may be to the advantage of the family to use manure for fuel.

When she burns manure, the homemaker loses nitrogen. This would amount, under normal conditions in the United States, to about 8 pounds nitrogen per ton of manure plus the organic matter associated with the nitrogen. The phosphorous and potassium remain in the ashes and are equally available as before burning. They can be used for fertilizer or other uses within the home.

In countries where fuel, such as wood and charcoal, are available, there would seem to be no good reason for using manure for fuel.

Control of Garden Insects

Specific recommendations for the control of insects in gardens cannot be given in this publication. This is due to the many crops, the many different kinds of insects, and the varying climatic conditions throughout the world.

Most countries have done some form of research on insect control. And many have an entomologist connected with the extension service experiment station or local university. Your recommendations on insect control should be based on facts obtained from such authoritative sources when they are available. Some general statements may help to guide you as you talk with such authorities.

Many insects can be held in check through the use of rotenone, which comes from derris or cube roots, or from pyrethrum, which comes from the flower of the pyrethrum plant. One or the other of these is grown locally in many areas.

More modern insecticides are specific in their action. The availability of a particular insecticide and its effectiveness under local conditions will influence the recommendations for its use.

All insecticides are poisonous by the residue they leave, and by inhalation. Some are safer than others and the safer ones should be recommended for use on the edible portions of plants, such as cabbage, lettuce, other greens and the fruits of plants.

Among the safer ones are rotenone, pyrethrum, and sabadilla.

Moderately toxic to humans are methoxychlor and malathion. Slightly more toxic are DDT and toxaphene.

Your local authorities may be able to give you more information on the toxicity, hazards, and precautions to use with the new insecticides.

School Gardens

A garden project undertaken in a mission school in Ecuador has been a thin wedge in breaking down age old food habits in one community.

During the first year of this project the older children were taught how to make a garden, using the school garden as a laboratory. They were allowed to eat the vegetables they grew in a mid-day lunch prepared at the school.

The second year, each child was allowed a part of the school plot for his own. Furnished the seed, he was allowed to take home half of all the vegetables produced, the other half being used for the mid-day meal.

The third year he planted the seed he had saved from his plot and could take home all the vegetables he grew. The fourth year he was encouraged to begin a garden at home using some of the seed he had saved the previous year, and some of the seed furnished by the mission.

A similar plan put into effect in Ethiopia by two FAO home economists from Norway who had enthusiastic cooperation from the government. Within two years, thirty-five schools had their own gardens. Some of the vegetables grown were used for school lunch, and some were taken home by the pupils. This was a double educational project, for the children and parents were growing gradually accustomed to and liking these vegetables which were a valuable addition to their diets.

In Africa a demonstration vegetable garden was developed at the Health Center where members of the staff themselves could gain practical gardening experience -- and where families could see how the vegetables were grown. Vegetables from this garden were made available to families on prescription. The more interested families were helped to start their own gardens, and as the number grew, a seed buying cooperative was formed. Later a small market developed through which farmers could sell their suplus products.*

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*A comprehensive health program among South African Zulus, Russell Sage Foundtion, 1955.

POULTRY,
RABBIT
AND
GOAT
PRODUCTION

POULTRY, RABBIT AND GOAT PRODUCTION

Poultry*

From 2 widely separated areas come the following descriptions of problems in poultry production typical to many countries: "Chickens running loose, picking up what they can find to eat, laying whatever eggs they can produce on such feed."

"Scrawny native game chickens not as big as guineas, weighing not more than one and a half to two pounds, the only source of meat and eggs."

The effort made by some countries to improve poultry growing under adverse conditions is admirable. Most extension agents working in difficult situations have felt that their best chance to bring about desired changes in poultry production is in the improvement of native stock.

Every family requesting help must learn to make its own decisions in poultry growing on the basis of several alternatives. The following information will help them.

a. They can have more eggs and meat with fewer chickens than they now have, by giving them more feed and better care.

b. They can have as much meat and eggs from fewer chickens than they now have if they up-grade them through the use of a good cockerel, and give them the same amount of feed, and better care.

c. They can upgrade their present native stock, take better care of it, grow more food for it and have more eggs and meat than they now produce. The male bird is, of course, half the flock. When native hens are bred with good cockerels, obtained from sources within the country, or from a nearby country, the quality of both meat and egg production can be improved quickly.

   Good hatching eggs, set under a brooding native hen can be the source for both good pullets and cockerels.

   Home agents in the Philippines gave demonstrations in making poultry coops from bamboo to keep chickens from running wild around the village. They also taught village men and women to make feeding and watering troughs.

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*Backyard Poultry Keeping, F. B. No. 1508, U. S. Department of Agriculture, Washington, D. C.

Home made brick or stone brooders put together with native clay or cement were an important contribution of extension workers to the poultry industry in the United States during 1920 to 1930.

A slow fire, using any available fuel, was the source of heat. One such brooder works efficiently for 100 to 200 chickens.

Exploring Possibilities in Poultry Growing

Home agents will face widely differing situations in helping to bring about poultry improvement. There will be much information they need to know before they make many recommendations on the subject. Will the family's aim be to produce for the market or to have more meat and eggs for use at home?

What research has been done in poultry? Are there poultry authorities connected with ministries of agriculture or universities to whom they can turn for help in subject matter?

Have the people actually grown poultry? If so, has this been in the interest of better food or income or hobby? What is the history of former attempts to teach better poultry in the villages? Many factors will determine the success of poultry growing.

Can feed be grown locally or must it be brought in? Is the climate good for poultry? Are there building materials suited for housing poultry? Poultry growing among some low income families in the United States has failed because the families disliked the daily care that successful poultry raising requires. If it were for only five days in the week, they might have succeeded.

Beginning a Poultry Program

How would you start an extension poultry program? This question would have a different answer in most countries of the world.

In Laos, 1000 chicks were hatched with the use of kerosene burning incubators at an experiment station at Savannakhet. Cockerels were put out in the fall to start an upgrading program. Expecting local people to object to giving up the male birds they already had, experiment station officials did not put out males until local ones had been sold, eaten or exchanged.

The extension program in poultry in Greece had its beginning in an emergency. Fowl all over the country were dying of Newcastle disease and village people were desperate over their loss. Then the village agents went into all the communities with an educational program aimed at the control of the disease. The measures taught proved so effective that there was an almost complete control of the disease.

Village people, of course, were grateful. Farmers, at first hesitant about allowing their wives to attend meetings called by the village agents, now urged them to go. It was the beginning of a mutual trust and confidence between the village people and the agents.

"I'd begin a poultry program with one 'clutch' of eggs in the hands of a young boy or girl." This statement made by an extension worker in the United States is reminiscent of the early poultry program in this country, in which one setting of eggs, often provided the stimulus to improved poultry in a whole community or country.

"You can improve poultry fast," this extension worker went on to say, "if you begin with one setting of eggs and 'grow' into the poultry business."

"Grow" in this sense meant learning to care for a few chickens before you attempt to raise many of them.

Good Management

Good care and management are needed for success in growing chickens. Cleanliness and dryness are probably two of the most essential practices any poultry grower must follow. This means that there must be good drainage so the chickens will not have to stand in muck or water. It also means that the chickens' surroundings must be kept as clean and sanitary as possible.

Any family could follow these practices. (1) Keeping chickens confined. A fence could be constructed of mud, bamboo or young saplings of trees. (2) Keep all litter dry so sun and air can improve the sanitation. (3) Dig a drainage ditch so water is carried away from the poultry. (4) Provide clean drinking water for the chickens at all times and shade if necessary.

The care of whatever poultry families may have usually falls to the lot of the homemaker, or the children. So it is the homemaker to whom most educational work will be directed. However, the help of the men will be invaluable as you learn about poultry problems and as a program is planned to meet them.

Poultry Study and Practice Popular Among Youth

Boys and girls in many countries like poultry projects in their club work. With a dozen eggs from well bred stock set under a native hen, a youngster is soon in a profitable poultry business.

Quality and quantity of feed is a major problem not only for the club boy or girl's poultry project but also for all poultry enterprises.

Some extension agents, after a study of feed available locally, have helped people work out formulas for mixing feed that meets the needs of the poultry. At the same time a market is developed for home grown products.

One interest-getting device for use in youth or adult groups is a check list (or yes-no test) based on desirable poultry practices. Home agents could work out similar ones based on the practices they teach in poultry.

Test About Chickens

1. Summer eggs are cheaper than winter ones. (Yes)
2. A setting hen likes to have her nest in the sunshine. (No)
3. Setting eggs should be kept in a cool, moist place. (Yes)
4. Smooth, regular shaped eggs should be selected for setting. (Yes)
5. Baby chicks should be kept warm. (Yes)
6. One hen can take care of 30 chickens. (No)
7. Good laying hens lay every day. (No)
8. Mites live in cracks in the chicken house. (Yes)
9. Turn baby chicks out early in the morning. (No)
10. A chicken house should be cleaned each day. (No)
11. Chickens must have good care. (Yes)
12. Young chickens should be kept away from laying hens. (Yes)
13. Lice live on hens all the time. (Yes)
14. Mites get on hens at night. (Yes)
15. Some hens are best for laying eggs. (Yes)
16. Some breeds are good for laying eggs and for meat. (Yes)
17. Some chickens are bred for meat production only. (Yes)

18. Sunshine makes chickens have strong bones. (Yes)

Suggested Method Demonstrations in Poultry

1. Method demonstration in selecting setting eggs and preparing a nest for setting.

2. Make a shelter out of a barrel, packing crate, bamboo or other material.

3. Make stone, brick or rammed earth brooder for baby chicks and show how a slow burning fire can provide heat for them.

4. Show how to cull out the non-layers from the layers.

5. Dust fowl with sodium fluoride. Hold bird up after a few minutes, shake, and see dead lice fall.

Control of External Parasites in Poultry*

Few specific recommendations can be made on the control of parasites in poultry due to varying conditions under which poultry will be grown throughout the world and the availability of different insecticides. Parasites are, however, a constant menace in lowering the production of meat and eggs by sucking blood from chickens. They also transmit diseases and cause a loss in energy from annoyance.

So you will want to consult your agricultural co-workers and the country's entomologist, if there is one, for information on the control of such parasites.

There are some general suggestions which you may want to have as you talk over this subject with agricultural technicians.

Insecticides such as malathion, rotenone, sodium fluoride, sodium fluosilicate or sulfur may be used on the birds or in and around the poultry house. Lindane or nicotine sulfate may be used inside the poultry house but not on the birds. Chlordane, toxaphene or DDT may be used safely outside of the house.

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*Diseases and Parasites of Poultry -- F. B. No. 1652 U. S. Department of Agriculture, Washington, D. C.

Lice

Lice may be controlled by using 1 part of sodium fluoride mixed with 2 parts of a diluent (common road dust will do). This should be dusted well into the feathers with a pinch of the material put back of the head, under each wing and around the vent. Common road dust mixed with ashes worked well into the feathers will give some relief. Sodium fluoride is quite common and is apt to be available in many countries.

Newer insecticides include malathion. This can be applied as a paint for perches -- 3% strength, 1% poultry house spray and 4% dust for the litter.

Check with your local agriculturalists about the use of these.

Mites

Mites crawl on the hen during the night and live in the cracks and crevices of the chicken house during the day. They draw blood from the hen's body. They multiply rapidly during hot weather. One of the best places to look for lice on the birds is the moist area around the vent. To determine if mites are present, look for small reddish insects in cracks or crevices around the roosting area.

Mites may be controlled by spraying the inside of the house with oil. A mixture of one part kerosene and 4 parts used motor oil is satisfactory. Depluming mites, which burrow into the skin of chickens, may be controlled by dipping chickens in a mixture of 2 ounces sulphur, 1 ounce soap and 1 gallon water, wetting the feathers to the skin.

Chiggers

Chiggers are serious pests of chickens and turkeys. In the United States the infected areas where chickens roam are treated with toxaphene, chlordane or lindane dust or spray. Toxaphene or chlordane should be used so that there will be 2 pounds of active chemicals per acre or 0.25 pounds of lindane per acre. Birds should not run on a treated area for at least seven days.

Rabbits*

In rabbit production many families in different countries find supplementary income and food. It has become an important side line on small general farms in Puerto Rico and has filled a great need for meat in the diet of Puerto Rican families.

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*Adapted from Farmers' Bulletin No. 1730 -- Rabbit Production, U. S. Department of Agriculture, Washington, D. C.

4-H Club members in both Puerto Rico and Taiwan (Formosa) have found rabbits both interesting and profitable. In some countries there are religious taboos against eating rabbit meat. You will want to inquire about this before you attempt to promote rabbit production projects.

Start on a small scale, a family can learn the rabbit business very quickly. Experience is needed on a small scale before expanding production. For this and other reasons most families without experience in growing rabbits are advised to begin with a bred doe or a pair of rabbits.

Many families do not have the money to buy many good breeding rabbits at first; they may also lack the time and the money to build or buy good equipment for a large number; there is also the need to provide food. If the family begins with a pair of rabbits, the children can likely forage for enough feed for them or at least to supplement their feed.

With only one pair, the family learns a good deal about the care needed for success with rabbits, and avoids the discouragement that comes with the losses that might occur when too many rabbits are grown with limited feed and equipment.

For all these reasons, a single doe (female rabbit), when bred, makes a very good beginning for a rabbit project.

There may not be a choice available in breeds. Good meat rabbits are usually medium in size, rather short, compact, medium to fine boned, broad and well covered with flesh. Wide heads and short necks usually go with good meat types. Does should be selected if possible from large litters, because the tendency to produce large litters is inherited.

One breed of rabbit, the Angora, has value for wool production. The skin of rabbit if properly cared for has some market value.

There may be arrangements made with other families for an exchange of does and bucks (male rabbits).

Feeds and Feeding

Rations available for feeding rabbits will vary with the country, its climate and season of the year; and the age of the rabbits; and availability of food. Dry does and breeding bucks do not require the same rations as females with nursing young.

It is good to feed some legume hay to all rabbits at all times. Legume hays such as alfalfa, soybean, clover, peanut, and Kudzu are recommended. Where choices are possible the finer, leafier hay is to be preferred to coarser types. Grass hays may be used if legume hay is not available.

Fresh grass, palatable weeds, vegetables and root crops are high in vitamins, minerals, and proteins, and make excellent feed.

Grain such as oats, barley, rye, and sorghum may be fed as whole grained or milled. This is satisfactory if a protein supplement such as soybean, peanut or linseed meal is added so that the total ration will have about 14% protein. Pregnant does and does with litters should have a ration with about 16 to 20% protein.

Water, fresh and clean, is of the utmost importance, particularly during hot summer months. An average doe and her litter will consume at least a gallon of water every day.

Cow's or goat's milk may be fed to rabbits, but care must be taken to prevent it becoming sour or contaminated -- and thus cause digestive troubles.

Root crops such as carrots, sweet potatoes, turnips, beets, and artichokes make good feed throughout the year, but particularly in winter when there is no green food.

Management and Equipment

Rabbits are extremely sensitive to lack of clean surroundings and clean drinking. Strict sanitation practices must be followed for maximum success.

Rabbits are easily frightened and should be handled at all times with care and gentleness. Ideally, a rabbitry should be enclosed so dogs and other animals cannot get in.

Best results can be obtained by growing rabbits in confinement when it is possible to build shelters or pens for them. At least ten square feet of floor space for each doe and her litter is desirable. Smaller types of rabbits can get by with only 7-1/2 square feet. In your recommendations on this, however, as on other subjects, you must be realistic, not setting up standards for feeding, care or management that are impossible to achieve.

If a family starts with a single bred rabbit and gradually grows into the business, very little equipment is needed at the start.

Hutches are usually 2 feet high, 2-1/2 feet wide and the length varies with the breed.

While a wire floor for a hutch (through which droppings may pass through readily) is desirable, branches of trees can be intermeshed for both the floor and the sides of a hutch.

Bamboo may also be slatted loosely to form a floor and sides. A nest box can be made out of a hollowed out tree trunk or it can be fashioned basket like from coarse strips of plants.

The lower end of such a box when laid on its side should have a board that extends out several inches past each side. This keeps the rounded box from rolling and prevents young rabbits from leaving the nest too early.

Rabbit manure has a high nitrogen content when the rabbits are fed a well balanced ration. It is easy to work into the soil and good to use on gardens and other crops. There will be less loss of fertilizing elements if the manure is used in a compost pile (see section on compost).

Rabbit Meat and Its Uses

Rabbit meat is white, fine grained and has approximately the same food value as beef. In Puerto Rico it becomes the base for a highly

Local leaders in Peru demonstrate how to prepare rabbit for a 'one pot' meal.

palatable and nutritious one-pot meal as it is combined with tomatoes, onions, corn, carrots, and other vegetables.

One home demonstration agent in Puerto Rico taught a couple of women leaders in each community to make this particular "one-pot meal", a demonstration they could give to all their neighbors in their home demonstration clubs.

The two leaders begin their demonstration by going out to a rabbit hutch and getting a rabbit which they bring before the assemblage of women. After they have petted it a bit, emphasizing the need for being gentle in the care of rabbits, the demonstration proceeds as follows:

a. One of the women takes a hammer and raps the head of the rabbit to knock it unconscious, and then holding it over a pan, sticks its throat so it bleeds well.

b. Being very careful that the hairs of the skin never touch exposed meat (objectionable odor associated with rabbits comes from the hair) the other woman skins the rabbit and smiles as she presents a rabbit's foot (good luck omen) to a member of her audience.

c. As she tells about the fine points of dressing a rabbit the first woman washes the blood off the meat and rubs over it the cut surface of a lime ("To remove the wild flavor," she says).

d. The rabbit is then eviscerated, cut into serving size pieces and slightly browned in fat in an iron pot.

e. Tomatoes, potatoes, onions, carrots, (previously prepared) and salt are then added and the whole placed on a low fire to cook for 1-1/2 hours.

f. Then the two women bring forth an identical pot of the rabbit mixture (which they prepared that morning) and serve to all the women present.

g. After this, talking back and forth to each other and their audience, they tell about the food value of such a meal and all the variations possible. Questions are asked and answered and all the women go home resolving to begin a small rabbit project and to prepare their own one-pot meals with rabbit!

While Puerto Rican agents recommend lime or lemon juice to rub on rabbit meat in preparation for cooking, other materials may also be used. A mild solution of soda water may be used to soak the rabbit carcass in briefly before washing again and cooking. Salt water or vinegar may also be used in the same manner.

Rabbits may be butchered for eating by the time they are two or three months old and weigh 4 to 5 pounds, or they may be kept and fed over a longer period until they reach their mature weight (varies according to breed).

If a family continues in the rabbit business it will no doubt want to pick out and keep the best looking rabbits to increase the herd. Out of such a selected group some does or bucks may be swapped with other families so that unrelated stock may be used for breeding.

Milk Goats*

Over the years milk goats have been used largely by families not able to keep a cow. They have been so used in Italy, Germany, France, Norway, Spain and many other countries.

The goat is desirable for those who want a small quantity of milk and do not have room for or cannot afford a cow.

A goat can be kept where it is impossible to keep a cow and it will eat considerable feed that would otherwise be wasted. The goat is rarely affected with tuberculosis.

If the goat's milk is properly produced and handled, it should have no disagreeable odor or flavor. Principle sources of bad odor are particles of dirt or hair that fall in during milking.

The manufacture of cheese from goat's milk is simple and requires no special equipment.

Goats are browsers by nature and they prefer leaves, twigs and weeds to grass.

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*Milk Goats, Farmers' Bulletin No. 920, U. S. Department of Agriculture, Washington, D. C.

HOUSING
AND
HOME
IMPROVEMENT

HOUSING AND HOME IMPROVEMENT

Your first job in beginning any work in home improvement may be to convince yourself that any home, in any situation, can be improved; that any family, given the proper incentive, will want its home life more convenient, more comfortable, more healthful and otherwise satisfying; and that some improvements can be made in any home regardless of how little the family has to do with.

It may be a long time before you or the home agents will talk home improvement as such. But this will not hinder you or them from planting many good ideas on making the home a better place. You can do this simultaneously with other projects. For example, when you are teaching how to dry fruits and vegetables, point out the need for light and ventilation as you work in the kitchen. If you talk of the reason for a balanced diet, explain also the body's need for clean air and sunshine. If you talk of sanitation outside the home, you can relate it to the inside as well. The importance of cleaning walls and floors and storing foods and supplies can be related to health and sanitation.

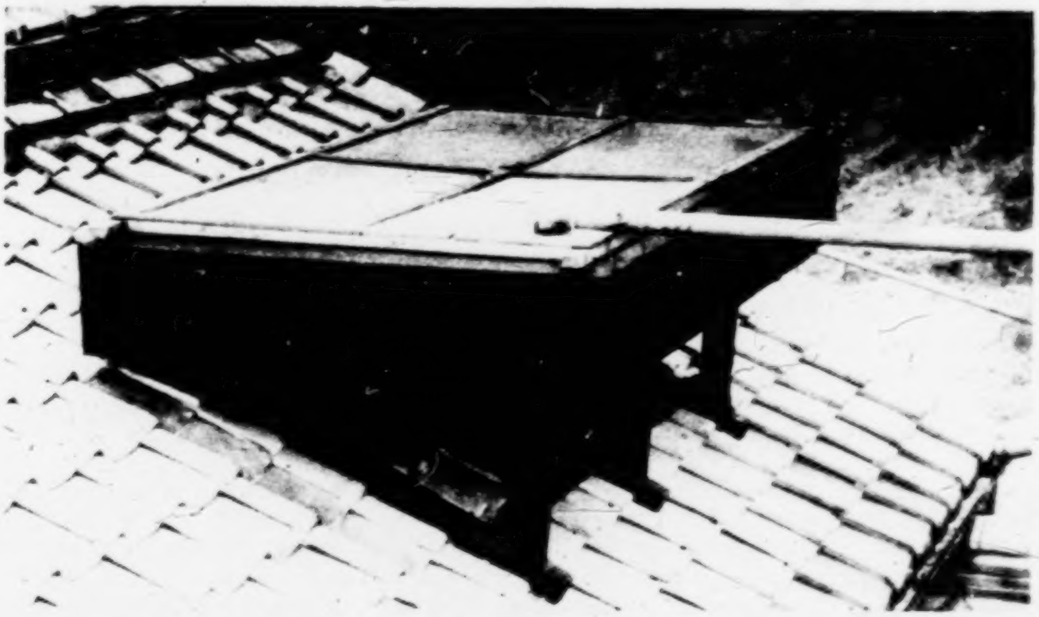
Finding Some Good in Present Practices

For a long time your own contribution to home improvement may lie in finding something good about what the family already has done -- a beautiful grapevine planted against a whitewashed wall; an ingenius arrangement of a dirt shelf to hold a lovely copper vessel; an embroidered hanging that is like no other in the village; a woven mat made into a screen to give more privacy; a well thatched roof that gives coolness as it protects from the rain. Most families have something that can lead to a desire for further comfort or beauty or convenience.

An age-old story points a way. It's the fable of the family who each Christmas had little to look to except a barrel filled with odds and ends of discarded clothing from a wealthy cousin. On this Christmas, however, by mistake in a switch of barrels, andirons meant for another relative came to the poor one instead. Open-mouthed the family stared at the lovely brass, touching it gently as if it were unreal and would vanish in a moment. They placed the andirons in the fireplace, and stood off to admire the beauty that had come to their poverty stricken home. But now they saw, maybe for the first time, that the fireplace was unkempt and littered and would never do for the lovely andirons. But it could be cleaned up. So they set about to sweep and to whitewash, and soon the andirons in the new setting were as beautiful again as the family thought. But they realized now, the room was no proper place for such a fireplace and the beautiful andirons. So there was much ado again as the family scrubbed the floors and cleaned the walls until they shone. Now they truly had a setting for the lovely andirons! But the room didn't match the house. The story goes on, until the home and the neighborhood were changed, all because some beauty had come to simple surroundings.

Of course, improvements usually are not as easy to bring about as in this story! And there are no beautiful andirons at hand! But there are people who want better surroundings and there are many ways to bring these about.

As you become acquainted with people and learn of their values, or what they want in life, you will probably be changing some of your own ideas about home improvement. You may be seeing for the first time the beauty there is in simplicity, in order, in cleanliness and in a lack of clutter. All of these can be achieved in any country, any time, any place.



Solar water tank on roof of a farm home in Japan.

One Community Shows The Way

Notable changes have come about in rural homes in the south of the United States through the work of home demonstration agents. Generally the changes have been simple ones, involving little or no expenditure of money but requiring a good deal of planning and work on the part of the families. Sometimes such improvements have been inspired by an individual through home visits and through groups. In other cases home improvements have become community-wide projects involving all the families. Somewhat typical of this last method is the work of one southern community where home improvements had been talked about, particularly in the Negro home demonstration club. A few families had made many improvements in their houses and yards. However, most families weren't interested in change where either money or work was necessary. Money was scarce and there wasn't much time for extra work if a farmer made a living. The women, however, felt that there must be some way to help them have more comfortable homes. They decided that maybe they had failed because they had not brought their husbands in on their plans. So an evening meeting was called, and all the farmers invited. A big meal was planned to attract them to the meeting.

As the group sat together following their good dinner they talked about their old, ramshackle houses. Some were practically falling down. Underneath the jokes could be sensed a concern and a desire for better homes. They talked about their problems: little or no money to buy windows to replace broken ones, or lumber for broken down door steps, or nails to patch a roof or wall. They also talked about what they did have: labor -- some of it pretty skilled -- like Joe Smith, an excellent carpenter, and Bill James, a good cement man. They spoke of building materials. There were a few piles of surplus lumber that some white families might donate, merely to clean up their own premises. Then there was sand and clay and stone free for the picking up.

A Group Works Together

"Why don't we start with one house," the home demonstration agent suggested, "and see what we can do to it, if we all work?" This was a novel idea. The group thought about it. It would be work, but it would be fun, too. Why not? So it was decided to give it a try. There was a round of talk and everybody had his say and all the suggestions were listed on the blackboard.

There wasn't much question about which house to start on after some one suggested that the widow Jones' house was on the highway where everybody could see what was going on, and her home certainly needed repair. So it was decided who could do what and when it could be done. Everybody was called on to do something. Four-H boys and girls could clean up the yard and get rid of a junk pile. With the help of their 4-H leaders, they could go into the woods and dig up trees, shrubs and flowers for the yard. Three of the men said they'd make the stone steps to replace the broken ones. Three of the younger men volunteered to patch up the roof with the shingles the widow had. The carpenter called for volunteers to jack the floor up, so better underpinnings could be put in place.

The women, deciding the inside of the house was their province, began to plan to whitewash walls, to install new shelves, to paint old bedsteads and other furniture, and to make fresh curtains out of feed sacks they'd contributed. Two weeks later the Widow Jones' house was completed. It didn't even look like the shack it had been.

All the neighbors gathered again, this time to celebrate the end of their labours. All agreed they had had a happy time working together. But their real satisfaction came with the new ideas they had learned, which they could use in their own houses. There was the sink which the home agent showed them how to make; the shelves in the kitchen that would treble the old storage space; and the feed sacks which had been washed and dyed and made into curtains. There was the rearranged kitchen made possible simply by moving the stove and table into a more convenient working location. This demonstration house, as it came to be called, was the beginning of many changes that came to this community in the years that followed. It had a snowballing effect resulting, not only in better and more comfortable housing, but also in increased incomes. Families had learned a lesson in cooperation that brought profits later from the cooperative sale of products.

The idea behind the house re-making is "as old as the hills." All over the world families join together to achieve what one member can not do for himself. In Panama this takes the form of a celebration, when all the families of the village join together to build a house for a newly married couple. In pioneer days in the United States it took the form of a log rolling, as families joined in building a log house.

In some rural communities in Utah, neighbors go together to the hills, snake down trees of the forest, marked previously for this purpose, and together build a barn, a chicken house, or even a new home where one is needed.

Housing Suited to Needs

Most countries have devised effective methods for building the kind of houses suited to the climate, the needs of the people and the economic resources of the people who are to live in them.

Not all families, of course, have such houses or the ability or resources to build them. But there are minor improvements which may be made to any home. Your contribution to better housing, after a long and thoughtful study of what families want of a house, may be to inspire home agents to bring about these minor changes that may in time lead to major ones.

Usually these improvements are ones that can be made by the villager and his family. with their own labor and materials. In housing, as in other subjects, be careful that you do not inspire changes impossible of achievement for lack of money, time or labor.

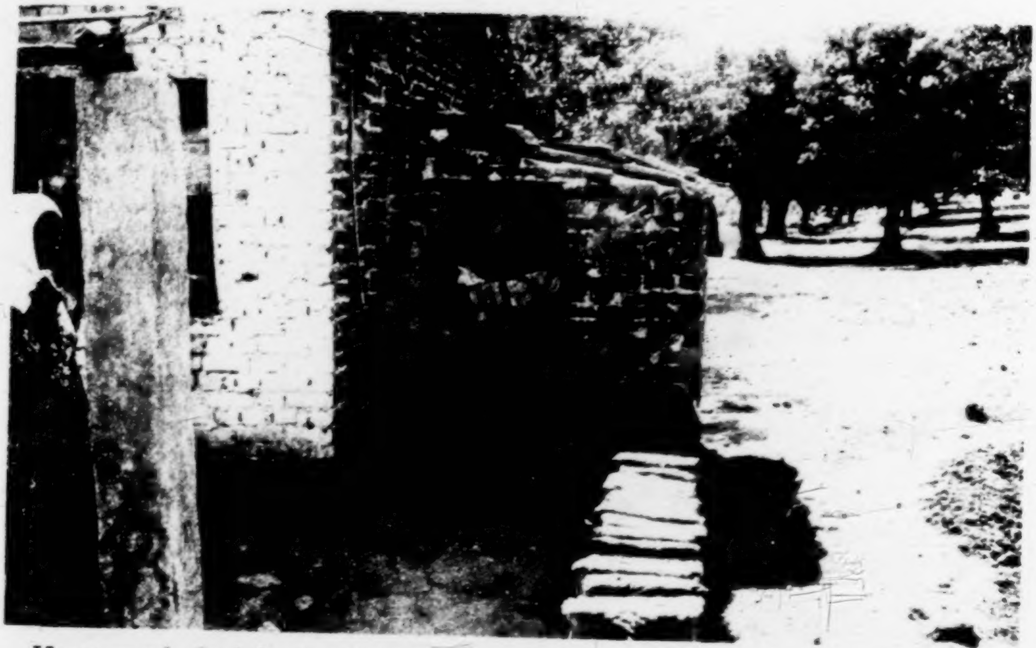
In every village there will be some families who have made good homes for themselves. There will also be those who are existing in very poor homes. Study the good ones. There may be features which home agents can recommend to improve the housing needs of less fortunate families.

Many villagers all over the world have small industries where brick and tile are made. The cost of such brick and tile may be so high that the average villager cannot buy them for his own house.

Homemade brick drying in the sun in Turkey.

If the villagers combine their talents and materials, they may be able to make their own bricks and tile for their own homes. A beginning of such cooperative work has been made in Brazil. By cooperative action many villagers have already built good houses.

In Panama a good home, made of small saplings interwoven with the smaller branches of treas and plastered over, is put up in a single day through cooperative work. When the 20 or 30 neighbors finish such a house, the women prepare food to make it a gala occasion. There is feasting and dancing.



Homemade bricks used in the construction of a good Turkish house.

Some families in Turkey make good houses with small poles, small stones and clay. The poles are used to fashion a frame work for the walls which are in turn filled with small round stones. Clay fills in the crevices and the whole is plastered over on the inside and outside with a thin clay plaster.

In Panama little branches are interwoven and attached to poles to form walls and ceiling. These are covered over with a thin plaster made of clay, water and manures. Many homes in Bolivia are made of rammed earth walls with thatched roofs.

Pueblo Indians of the United States have been ingenius in building their homes.* In the West their material for building was the soft red or yellow rock of which the mesas are formed. This was cut into smooth thin blocks laid in a wall a foot or two thick. Cracks were filled with small stones and made solid by plastering with mud.

In the eastern river valleys where stones were few, the pueblo houses were made of mud. But this was a special earth, the famous adobe. Adobe is a mixture of clay and sand that dries hard without cracking. When the Indians lacked sand, they added straw to prevent shrinkage and cracks.

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*Workaday Life Of The Pueblos, Ruth Benedict, Pueblo Indian Printshop; Phoenix, Arizona.

The adobe house has been called a gigantic form of pottery, which, while it crumbles in time, can be built again when the rains come. Doorways in such homes had no frames and no wooden doors. But the ingenius builders set a wooden pole in the masonry above the door on which could be hung a skin or reed mat to provide privacy.

Furniture for the adobe houses was usually built in. Around two walls ran a masonry bench which could be either a shelf or a place to sit. In the walls there were niches, made by walling an open hole on one side, which served as cupboards. A pair of deer horns and a wooden peg set in the wall were used for clotheshangers. Along the floor, on one side of the room, was the most important furniture of all, a series of stone slabs set one within another for grinding. There was a corner fireplace, because it is easier to build one in a corner, with two walls to give it support rather than one.

In a more luxurious home, three or four stones were brought in for sitting. Usually they simply removed the blankets they wore and folded them for a seat.

A peeled cotton wood pole hung from the rafters by yucca fiber cord for hanging blankets and rabbit skin robes during the day.

The Hopi Indians made small openings in their houses which they filled with slabs of selenite, a glassy kind of gypsum through which light can pass. These were their windows.

Some Indians did not mix adobe mud with water in plastering their floors. They waited until they killed a horse or cow and used the fresh blood instead of water. This cakes like glue to make a hard floor.

Indians who were good at cutting sandstone paved their floors with irregular blocks of stone, filling in the cracks with adobe mud. This kind of floor does not have to be plastered.

Making Whitewash

Whitewash, in terms of some American Indian tribes (Zuni, Keres and Hopi), can be simple and easy to make.*

The man of the house locates a deposit of gypsum, digs for the crystals, and hauls them on a donkey's back to his home. With a stone he pounds these crystals into fragments.

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*"Workaday Life of the Pueblos," Ibid.

His wife then covers them with cow dung and bakes them as she does pottery. When baked they are ground on a stone, much like that used in grinding corn into cornmeal.

After the rainy season when there is plenty of water she moistens the whitewash and smears it over the walls of her home with a piece of fur. Around the floor she often leaves what might be called a base board 10 in. wide. This she plasters with brown adobe because floor dirt would soil a white wall.

The following formula for whitewash is a good one.*

Whitewash Formula

1/2 bushel of freshly burnt lime, slaked with boiling water. Cover it to keep in steam.

Strain through fine sieve, and add to it 7 pounds of salt, previously dissolved in warm water; 3 pounds of ground rice boiled to a thin paste and stirred in boiling pot, 1/2 pound powdered Spanish whiting; 1 pound clear glue, previously dissolved by soaking it well and then hanging it over a slow fire in a small kettle, set in a large one filled with water.

Add 5 gallons of hot water to the mixture, stir well, and let stand a few days. Apply to walls quite hot.

One pint will cover a square yard.

The Bed and Bedding

When you or the home agents visit in homes note the kind of beds and bedding the family has. As you begin to know the homemakers, you may want to talk with them about beds. You may approve the intricate weaving of the hammock the baby sleeps in; perhaps comment on the improved way the bed is raised from the floor, or hung from the ceiling when not in use.

As you talk, note their opinions about the comfort or convenience of their present beds and coverings. Tell them that you have been thinking about ways in which beds could be improved and get them to tell you what they think about the subject.

A frame for an improved bed may be like one you have seen; or it may be made from four packing boxes with planks nailed over them to hold them firmly in place; or it may be fashioned, as in the Philippines, from bamboo. The making of a pad or mattress for such a bed is a skill the women may be glad to learn.

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*Scientific American Cyclopedia of Formulas - Monn Inc. - New York, N. Y.

A Peruvian home agent teaches rural women to make a mattress using wheat straw.

The making of mattresses proved popular in the state of Rio Grande in Brazil and everybody wanted to learn how. One villager proved so adept at making corn shuck mattresses that he started a small factory.

Home agents in Brazil have shown families how to construct a good mattress from corn shucks. These shucks are dipped in boiling water, then while moist, shredded in small strips by a small hand paddle with short nails in it. The tough top part of the shuck is then cut off with a sharp knife and the filling is ready to be placed in a tick the size wanted. The making of this tick is simple, for it is like a box with squared corners. Twelve feed sacks full of shucks packed tight are required to fill a tick for an average size double bed.

As the shredded shucks are packed into the tick, left conveniently open at one end, it is beaten to distribute the shucks evenly. When all are in, the tick is completely sewed up and the filled tick beaten again.

When strong needles and waxed cord are available the tick may be tufted. Simple tufts can be made of oil felt, or doubled squares of ticking cut in a round shape.

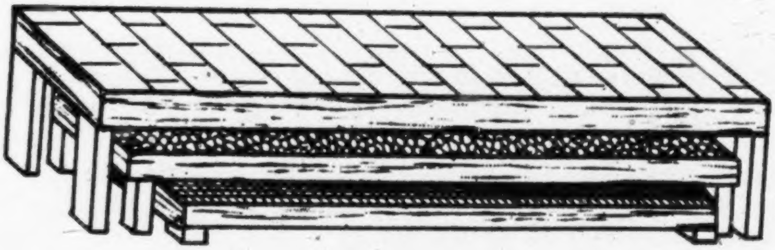
In countries where corn shucks are not available there are usually other materials which can be used, such as rice or wheat straw at the end of harvest; hay from wild grasses; or banana or palm leaves.

Before home agents begin to teach this skill you will have checked the local availability of suitable ticking needles and thread.

Goose down and feathers have been used to make good mattresses in many countries. The German method of putting these in great puffy squares for a warm bed covering has merit.

Nest of Beds From Puerto Rico

A nest of beds will provide good sleeping facilities to members of a family when floor space is small and needs to be used for different purposes during the day. The beds can be stored, one under the other, during the day and thus take up less room. The nest can be used for seating during the day.



Nest of beds.

The largest bed is made first. All of the beds are the same width but the length and height varies in order to get one bed under the other.

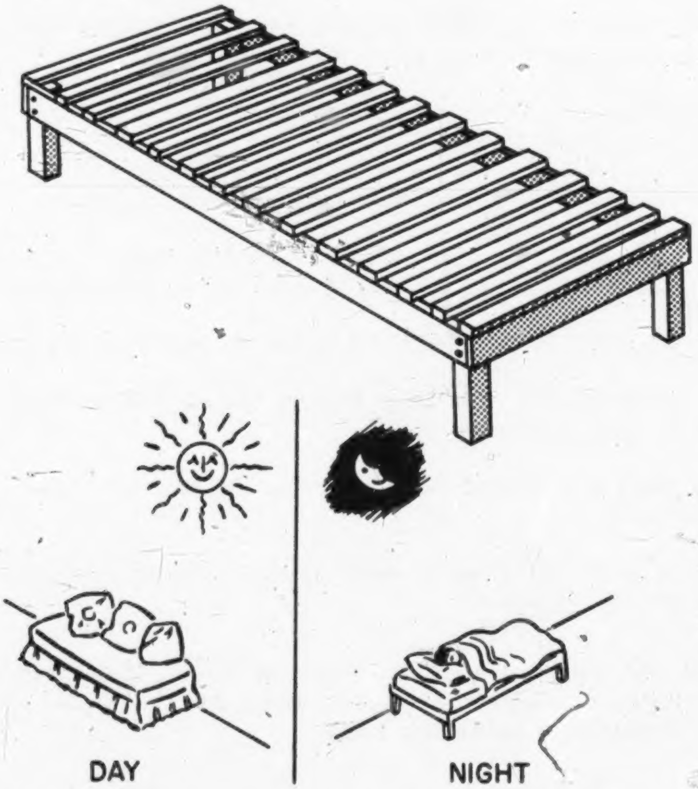
Materials include: Largest Bed -- 2 boards 1" x 3" x 72"
2 boards 1" x 3" x 36"
4 boards 2" x 2" x 20"

2

Medium Bed -- 2 boards 1" x 3" x 66"
2 boards 1" x 3" x 36"
4 boards 2" x 2" x 15"
Nails 1-1/2 lbs.
Paint, chicken wire, bailing wire, burlap.

Directions:

1. Cut 2 long rails -- 1" x 3" x 72"
2. Cut 2 short rails -- 1" x 3" x 36"
3. Cut 4 legs, 20 inches long.
4. Nail 2 legs to extremities of one of the 36 inch rails and the other two legs to the extremities of another 36 inch rail.
5. Connect the 2 already prepared sides of the bed with the 72 inch rail. The framework is finished and ready for the spring to be attached.
6. Make the second and third beds the same way.
7. Springs can be made out of discarded materials, such as bailing wire, burlap, canvas or metal mesh.



Convertible bed (Brazil).

List of Suggestions for Home Improvement

1. Whitewash earth walls. See whitewash formula and also methods in use by American Indians.

2. Make niches in walls to hold (a) utility articles (b) articles prized for their beauty.

3. Make niches in earthen walls for shelves for high storage of food, so that it is protected where necessary from some animals.

4. Make drainage ditches outside the house to drain off surplus waters.

5. Make a window in the house. The frame could be of small branches of trees, and the panes of paper oiled with waste fat.

6. Make a covering for a window of fine grasses woven into a window frame of poles.

7. Weave screens of tough grass or other plants to provide greater privacy within the house.

8. Make broom (for sweeping) of tough grasses or straw tied to a round branch of a tree.

9. Make decorative jugs to hold wild flowers.

10. Fashion stools, benches, or chairs for sitting of available materials such as rataan, bamboo, wooden stumps, packing crates, or poles.

11. Make pegs to fit into earthen walls on which to hang clothing.

12. Make hangers for clothing from small branches tied with grasses, so they may be hung.

13. Make pegs to fit into kitchen walls on which kitchen utensils could be hung.

14. Make a door or even a half door, to keep animals from running through the house.

15. Construct manure pits to improve the appearance of home surroundings, to make more good manure available, and to eliminate some breeding places for flies.

16. Add home medicine cabinets and locate them in safe places out of the reach of children.

17. Add a window near the cooking area to bring light and sunshine to the homemaker's work.

18. Select a site for a new home that is well drained.

19. Add a clay plaster to the inside or outside walls.

20. Plant a tree to provide shade and/or fruit.

21. Hardsurface a dirt floor by adding a thin coat of cement mixture, or clay mixed with manures.

22. Make child's play pen, so baby can be safe while mother works nearby.

23. Make a shower bath, inside or outside the house -- at little or no cost, except in effort. This may be as simple as putting nail holes in a bucket and suspending it from a tree limb or as elaborate as walling off a section of a back porch and running water to it from a barrel off the roof.

CARE
AND
CONSTRUCTION
OF
CLOTHING

CARE AND CONSTRUCTION OF CLOTHING

In the purchase, construction and care of the family wardrobe, the homemaker is almost universally the responsible member of the family. Seeing that each person has sufficient clothing is a problem common to almost all families in varying degrees. Yet in most areas she has not learned the fundamental knowledge of how to make and remake clothing; how to weave material, how to knit and sew and care for clothing.

If she can be helped to see the value of having these skills, the little cash the family has could go for more clothing, better clothing or for other essentials.

To some peoples the problem is one of making sure that for all social usage there is clothing of a desired type; to other families the problem is to get clothing that will protect the individual from the elements, and at the same time satisfy a normal human desire for beauty in style, fabric, and color.

To a large proportion of the world's families, the acute problem in clothing is to get enough of the kind that will simply keep the family comfortable in wind, rain, cold and heat.

Small Skills To Be Explored

What is taught in clothing will depend on many factors, climate, economic status, customs and other factors.

In beginning a program in clothing you may find it worthwhile to teach commonplace skills that may lead to a solution of more fundamental needs. Some of these skills need to be considered:

How do you sew up holes in garments? Is there one way for sewing up straight tears and another for jagged ones? How can coat hangers contribute to better care of clothing? Can you devise a hanger from the materials families have, such as sticks, bamboo canes, long grasses or other native products?

Do moths infest winter clothing in summer weather? Are there simple ways of protecting woolen clothes from moths? Are these practices that cost little or nothing? Is mildew a problem?

How do women wash their clothes? Is there excessive wear and tear on clothes in washing? How can old clothes be reclaimed? What are the basic needs and desires in clothing? Is it one of protection, adornment or a combination of the two?

What kind of shoes are worn? Are they suited to people's needs? How can families be taught to make a wise selection of shoes or other clothing, when they buy them?

Does each family repair its shoes, or are there village services available for this?

Are there clotheslines on which to hang clothes? Is there a local grass or fiber from which clothes lines could be made? Is there a knowledge of pattern drafting? Will the equipment the home agent uses be the kind the homemaker has or can easily acquire?

All these and other exploratory questions must be answered satisfactorily before you are ready to begin much work in clothing.

Criteria for Deciding What to Teach

- Is there evidence of a need for the clothing instruction you have in mind?
- Is it possible of achievement with limited incomes, limited skills?
- Will it have a strong appeal to the homemaker's interests?
- Will it include some of the following elements?

  Surprise, the unexpected
  Liveliness, action, enthusiasm
  Participation by the homemakers themselves
  Conversation, humor

- Can it be made to appeal to homemakers whose interests are different and whose needs are varied?
- Is there a plan for interests through which the level of the homemaker's social life within her community can be lifted?
- Can you use homemakers' own experiences in the teaching?
- Will it interest the homemaker and possibly lead to the development of other interests?

Creating A Desire for Making Clothes

The age old desire for personal adornment among women and girls is a powerful incentive which can be used effectively in arousing interest in clothing construction and care of clothing. Once aroused, this interest can be related, not only to clothing problems but also to other equally pressing ones in other areas of homemaking.

It may be easy, as in India, to get girls and women to meetings to learn knitting or other clothing construction. Once you have established friendly relationships with them through this shared interest, you have an opportunity to challenge their interest in other practices for better living.

Since the incomes of many families will always be too low to buy every article of clothing they really need, they may be ready to learn how the family's moneys can be supplemented by growing more small fruits and vegetables for their own use or sale, making and caring for their clothes, or by making other economies. Keeping the families' clothes clean and well mended can be a real contribution for the mother to make when money is scarce and she has other work to do.

Peruvian agent demonstrates the measurements and hemming of a dress.

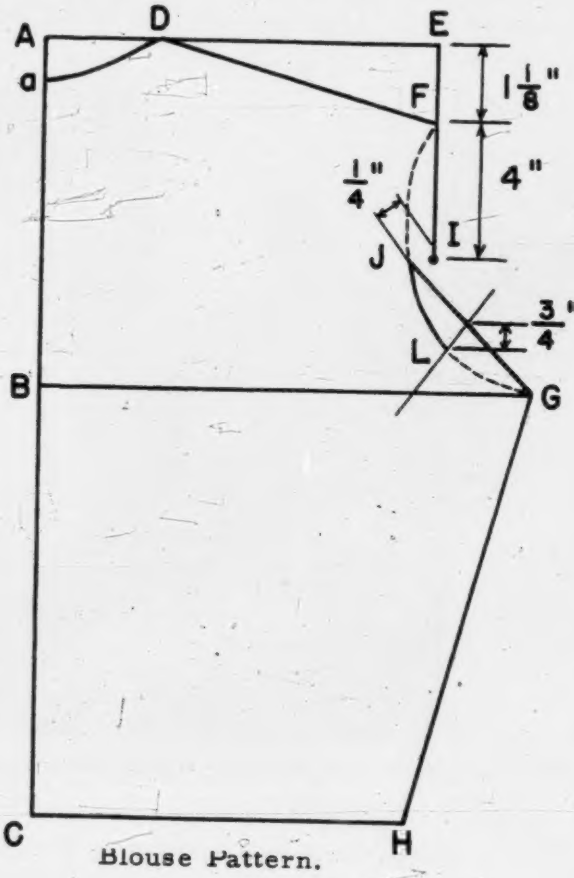
Some Problems in Making Clothes

One of the many problems in clothing construction in all countries is getting good equipment. A home economist in India says, "Sewing machines are usually portable and run with a crank on the balance wheel.

Most of the sewing is done by tailors who charge considerable for making garments. We encourage villagers to buy a sewing machine cooperatively and allow the homemakers to take turns using it. Needles, thread and other small equipment are often difficult to purchase. In some areas these are bought cooperatively."

Homemakers every place have worked out their own ways for fashioning articles of clothing. These vary from quite elaborate drafting methods to a practice of simply cutting out a garment by guess. You will want to help home agents study all good methods. The Philippine method for drafting patterns is relatively simple.*

"Draft Your Own Pattern"



Blouse Pattern.

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*"Draft Your Own Pattern," Leaflet 2, Department of Agriculture, Bureau of Extension, Manila, Philippines.

TAKE THE FOLLOWING MEASUREMENTS:

1. Neckline
2. Shoulder
3. Bust
4. Waist
5. Neck to Waist line

Fold the pattern paper lengthwise wide enough to determine 1/4 of the body measurement.

TO DETERMINE FOUNDATION LINES:

From point A draw a vertical line

Aa---1/2" below point A
AB---8" below point A
AC---Desired length of figure

TO DETERMINE NECKLINE:

From point A draw a horizontal line

AD---1/2 of neckline measurement (marked on the horizontal line from point A). Connect AD with a graceful curve to form the back neckline.

TO DETERMINE SHOULDER DROP:

AE---1/2 of the shoulder measurement; (marked on the same horizontal line) Point F---1 1/8" below point E.

Connect DF with a straight line to form shoulder drop.

TO DETERMINE THE BUSTLINE:

AB---8" below point A

From point B draw a horizontal line

BG---Bust measurement plus 3-1/2" divided by 4.

TO DETERMINE THE WAISTLINE:

AC---length of figure

From point C draw a horizontal line

CH---waist measurement plus 3" divided by 4

Connect CH with a straight line to form the sides of the blouse.

TO DETERMINE THE ARMHOLE:

From point E draw a line parallel to line AB

I---4" below point F
J---1/4" moved to the left of point I

Connect JG with a straight line – At point K (midpoint of line JG), draw a bisecting line.

Point L---3/4" below midpoint on the bisecting line

Connect F, J, L, G with a graceful curve to form the armhole.

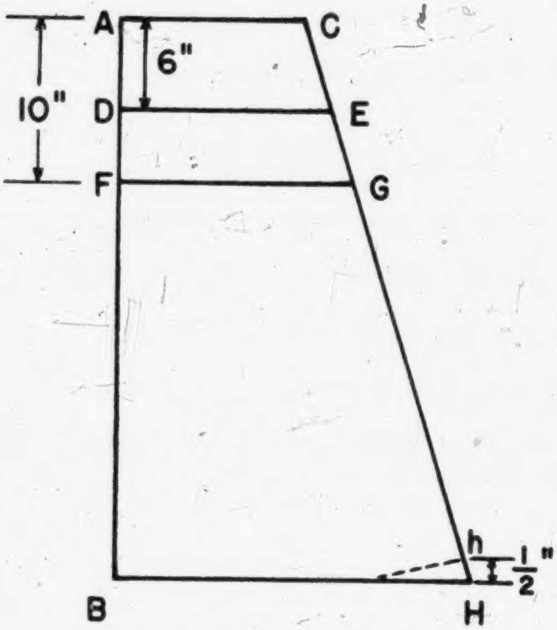
IMPORTANT: After drafting the basic pattern, cut the paper at the drawn lines, and separate the sheets at the fold. One sheet will form a pattern for the front and one for the back of the blouse, with some simple adjustments to be made on each. On the pattern of the back, cut a 3/4-inch strip from the side (GH) and a 1/2-inch strip from the waist (CH)

On the pattern of the front, cut the neckline to the desired shape, and reduce the sleeve curve by 1/4 inch, measuring at the middle of the curve.

SKIRT PATTERN

TAKE THE FOLLOWING MEASUREMENTS:

1. Waist
2. First hip (6" below waistline)
3. Second hip (10" below waistline)
4. Length of front skirt
5. Length of side skirt
6. Length of back skirt
7. Width of bottom skirt



Skirt Pattern.

TO DETERMINE THE FOUNDATION LINES:

From point A draw a vertical line

AB---line which indicates the desired length of the skirt

From point A draw a horizontal line, at right angles to line AB;

AC---waist measurement plus 3" divided by 4

D---6" below point A. Draw a line at right angles to line AD at point D to indicate 1st hip

DE---1st hip measurement divided by 4

AF---10" below point A. Draw a line at right angles to line AF at point F to indicate 2nd hip

FG---2nd hip measurement divided by 4

BH---Width of bottom skirt

Connect CEGH gracefully to form the sides of the skirt.

Point h---1/2" deducted from the length of the sides of skirt.

Connect BH to form bottom of skirt.

SLEEVES PATTERN

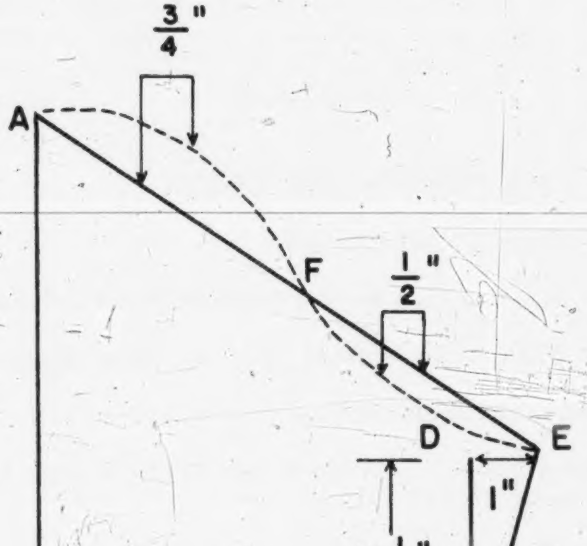
Be sure to know the following measurements:

Length and width of sleeves —

From point A, draw a vertical line.

AB---Desired length of sleeves.

BC---Horizontal line from point B, at right angles to line AB, which indicates the width of armhole.



Sleeves Pattern

CD---2-1/2" straight line from point C, perpendicular to line BC.

E---1" moved to the right of point D. Connect points A and E with a straight line.

F---midpoint of line AE.

From point A, make a graceful curve of about 3/4" to the right side of line AF passing thru the midpoint.

Continue the curve of about 1/2" to the left side of line FE down to point E.

FLAT COLLAR

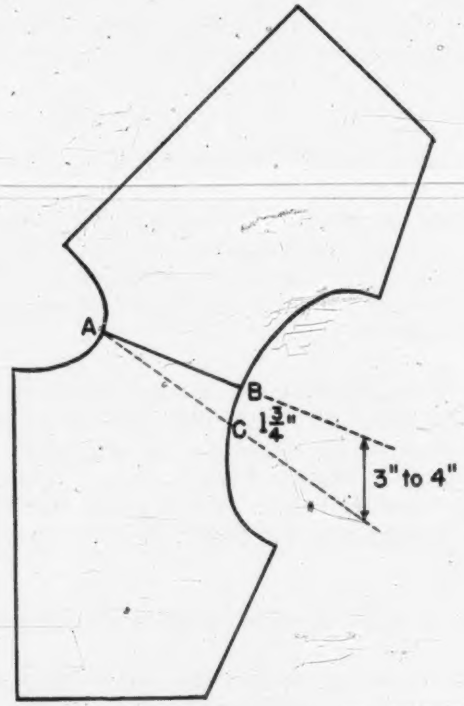
Fold another sheet of pattern paper.

Place back blouse pattern on folded edge, and the front blouse pattern as indicated in the illustration:

A---meeting point of both back and front neckline.

BC---1-3/4" overlap of both back and front shoulder drop.

Trace the pattern, and design your flat collar on the drawing.



Flat Collar

Why People Dress As They Do

Most countries have well established habits of dress. These have evolved over a long period of years, sometimes centuries, and are closely associated with tradition and well fixed social values.

Such values are not to be treated lightly. There may be good reasons for their choice of clothing. The use of high color is a case in point. Maybe bright red or green or yellow is not your idea for the most suitable colors for long hours of field work in the hot sun.

On the other hand, bright colors may be a relief from the tedium of drabness in living. They may contribute to the wearer's content with her lot and actually bring a lift to arduous labor. This does not mean that you should not try for changes in clothing that seem highly desirable.

A Beginning in Clothing Instruction

Home agents in Japan have helped rural women realize that heavily padded, voluminous clothing worn for work in rice paddies is neither suitable nor practical since it quickly becomes wet and soiled. With suggestions from the women, Japanese extension workers have worked out a type of work clothes the women like. These are adapted to the work and the availability of materials, and are within the skill of the women to make.

"We studied the clothing of the villagers," one home economist said, in telling how she helped to start a clothing course in Allahabad Agricultural Institute in India. "For the little baby we made shirts with ties for fastening, out of as inexpensive cloth as we could find, such as muslin and cotton flannel. In some villages babies wore no clothing even in the coldest weather, and we hoped the shirts might help to keep them more comfortable."

The mothers then learned to make dresses for small girls. For each dress one-half yard of material, approximately 1 yard wide, was folded lengthwise and sewn together at one side. A hem was made at the top and the bottom. Half circles, large enough for the little girl's arms to go through comfortably, were cut on either side of the top and hemmed. A draw string run through the hem at the top gave a desired fullness at the neck.

It was an article easy to cut, make and care for.

Short pants were designed for the little boys who usually wore only shirts. Village women in India who wear saris were helped to make suitable blouses and undergarments to wear with them.

By taking a woman's or girl's measurements, the home agents were able to draft a simple paper pattern, which was draped on the woman or girl and alterations made as needed. An acceptable blouse pattern was thus evolved.

Other agents taught the women and girls to make a blouse by using a straight piece of cloth, folding it in the middle, cutting a hole in the neck, sewing up the sides, allowing for the arm holes. But this method ran into some opposition. Higher class women wouldn't wear this type of blouse because of the custom to wear a blouse with set in sleeves.

Care of Clothing

More important perhaps than the selection or construction of new garments is the care for the clothes a family already has. Some home agents will be dealing with families who when they get new garments, continue to wear their old ones, underneath. But even with these families there will be seasons during which some clothing at least is put away for a period.

Good laundry methods (see section on laundering) can prolong the period of wear for a garment. Before it is stored, heavy woolen or other winter wear should be washed and sunned, and stored in a place least likely to attract insects. If possible, the clothes should be sprayed with a good insecticide. If not, they should be washed, aired and sunned frequently.

Frequent washing of all clothes will extend their usefulness and appearance. It will also contribute to the feeling of well being, and thus incidentally to the productive capacity of the family.

Pegs placed in earthern or other walls on which clothing can be hung when not in use may also add to the clothing's wearability and life. Simple hangers can be devised from bamboo, branches from trees, or other native source, and hung from a cord made of twisted grasses. Long grasses might also be woven into clotheslines that would dry clothes faster and in a cleaner manner than allowing them to dry on the earth. Wooden clothes pins might even be made by an able wood whittler.

Of course, the care of clothing will vary with the temperature, umidity, seasons, and type of clothes worn.

APPENDIX

APPENDIX

Measurements

One of the problems you will find as you work in different countries on clothing, home management or foods is the difficulty in arriving at some common measuring devices that are meaningful to you, and to those with whom you will work.

Educated people in every country have some system of weights and/or measurements for use in cookery. Some of the weighing methods may be the most accurate in the world, certainly more so than the system of cups and spoons, in use in the United States.

One disadvantage in the homemaker's use of weights, as economists in countries like France, Germany and England will point out, is the cost of the scales and weights used. However, most countries have established customs of measuring that are less expensive than weighing and are practical for the people. "Use two cigarette tins" reads a recipe for rice cookery from Jamaica. What are two cigarette tins of rice? What are two cups of rice? Could you establish a kind of relationship between two such different standards so that it could have meaning to you?

Your problem may be to take and work out, in terms common to the area you are in, some form of measurement that can be useful in teaching home economics. In Jamaica, a "herring tin" has meaning. In parts of the United States, particularly in the South, a "handful" of rice, a "pinch" of salt, or butter the "size of a black walnut" have meaning as measurements.

Could a coconut shell, cut in half, be a unit which could be taught? If so, what size of coconut? Would it be possible to establish a standard for a coconut shell, to be used for measuring?

Is a gourd of a certain size, a vessel suitable for measuring? Is it a "handful" of rice that will be measured? If so, whose hand? Should you try to set up some standard for a "pinch," a "handful," a "gourd?" The attached conversion table may be helpful to you, to village agents and to others as you establish some common form of measurements that will have practical value.

Conversion Tables*

The following tabulations do not cover all countries. They do include some of the units you will need for ready reference.

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*Foreign Weights and Measures of Agricultural Products, FAS, U. S. Department of Agriculture, Washington, D. C.

Table I. Common United States Units With Metric Equivalents

Distance and Area

Unit	U. S. Equivalent	Metric Equivalent
1 inch (in.)	1 inch	2.54 cm.
1 foot (ft.)	12 inches	.3048 meter
1 yard (yd.)	3 feet	.9144 meter
1 mile	1,760 yds.	1.6093 kilometers
1 acre	43,560 sq. ft.	.4047 hectare
1 sq. mile	640 acres	259.0 hectares

Capacity Dry

Unit	U. S. Equivalent	Metric Equivalent
1 qt. dry	2 pints dry	1.1012 liters
1 peck	8 qts. dry	8.8096 liters
1 bushel (measured)	4 pecks	.35238 hectoleter

Capacity Liquid

Unit	U. S. Equivalent	Metric Equivalent
1 qt. liquid	2 pints liquid	.9463 liter
1 qt. liquid	4 cups liquid	.9463 liter
1 gal. liquid U. S.	4 quarts	3.7853 liters
1 qt. of water	2.086 pounds	.9463 kilogram

Weight

Unit	U. S. Equivalent	Metric Equivalent
1 ounce	16 drams, avoirdupois	28.35 grams
1 pound	16 ounces, avoirdupois	.4536 kilogram
1 hundredweight U.S.	100 pounds	45.36 kilograms
1 ton (short)	2,000 pounds	.9072 metric tons
1 ton (long)	2,240 pounds	1.0161 metric tons

Table II. Common Metric Units — With United States Equivalents

Distance and Area

Unit	Metric Equivalent	U. S. Equivalent
1 centimeter (cm)	1 centimeter	.3937 inch
1 decimeter (dm)	10 centimeters	3.937 inches
1 meter (m)	10 decimeters	39.37 inches
1 meter (m)	100 centimeters	1.0936 yards
1 kilometer (km)	1,000 meters	.6213 mile
1 are	100 sq. meters	.02471 acre
1 hectare (ha)	10,000 sq. meters	2.471 acres

Table II--Continued

Capacity Dry

Unit	Metric Equivalent	U. S. Equivalent
1 liter (l)	1 cu. decimeter	.9081 qt. dry
1 decaliter (dcl)	10 liters	.28378 bushel
1 hectoliter (hl)	100 liters	2.8378 bushels

Capacity Liquid

1 liter (l)	1 cu. decimeter	1.0567 qts. liquid
1 liter (l)	100 cu. centimeters	.26418 gallon
1 decaliter (dcl)	10 liters	2.6418 gallons
1 hectoliter (hl)	100 liters	26.418 gallons
1 liter of water	1 kilogram	2.2046 pounds

Weight

1 kilogram (kg)	1,000 grams	2.2046 pounds
1 quintal (mg)	100 kilograms	220.46 pounds
1 ton, metric (mt)	1,000 kilograms	2,204.6 pounds
1 ton, metric (mt)	10 quintals	1.1023 short tons
1 ton, metric (mt)	10 quintals	.9842 long ton

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